GA-5EASV-RH

Pentium® 4/D Processor Motherboard

USER'S MANUAL

Pentium® 4/D Processor Motherboard
Rev. 1001
12ME-5EASVRH-1001R

* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!!
* The WEEE marking applies only in European Union's member states.

Table of Content

Item Checklist

- ☑ The GA-5EASV-RH motherboard
- ☑ IDE (ATA100) cable x 1 / Floppy cable x 1
- ☑ CD for motherboard driver & utility
- ☑ GA-5EASV-RH user's manual
- ☑ Serial ATA cable x 4
- ☑ I/O Shield Kit
- ☑ SATA Power cable x 4

WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

Installing the motherboard to the chassis...

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Chapter 1 Introduction

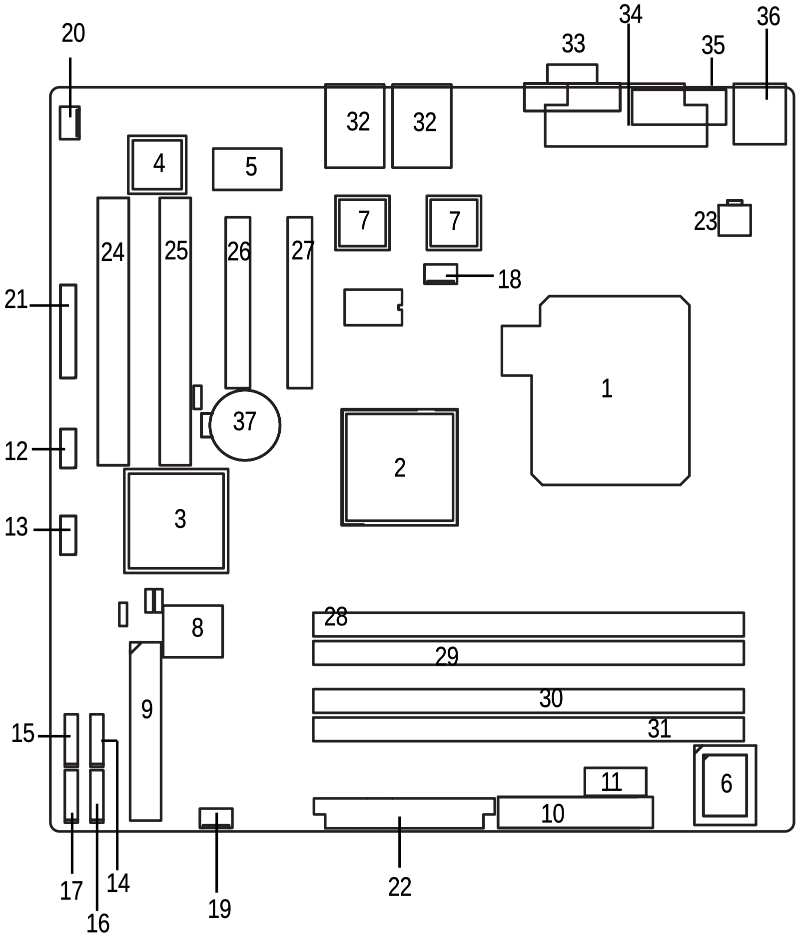
1.1 Features Summary

Form Factor	• 9.6" x 9.6" m ATX form factor, 4 layers PCB.
CPU	• Supports single Intel® Pentium® 4/Pentium® D processor • Intel Pentium® Dual Core in LGA 775 socket • Supports 800/1066MHz FSB • L2 cache on-die per processor from 4M
Chipset	• Intel® 3000 Chipset • Intel® ICH7R
Memory	• 4 x DDRII DIMM sockets • Supports up to 8GB 533/667 memory • Dual Channel memory bus • ECC Unbuffered DDRII 533/667 • Supports 512MB, 1GB, 2GB and 4GB memory
I/O Control	• ITE IT8718F Super I/O
Expansion Slots	• Supports 2 PCI slots 32-Bit/33MHz (5V) • Supports 1 PCI-Express x8 slot • Supports 1 PCI-Express x4 slot (in x8 slot)
SATA RAID Controller	• Built in Intel® ICH7R with Software RAID 0,1,10, 5 • Supports 4 SATA 3.0 Gb/s connectors
On-Board Graphic	• XGI Volari Z7 • 16MB SDRAM
On-Board Peripherals	• 1 ATA 100 connector • 1 Floppyport supports 360K, 720K,1.2M, 1.44M and 2.88M bytes. • 2 PS/2 connectors • 1 Parallel port supports Normal/EPP/ECP mode • 2 Serial port (COM, 1 by cable) • 8 x USB 2.0 (4 by cable) • 1 VGA connector • 2 x LAN RJ45 • 4 x SATA connectors

Hardware Monitor	•	Enhanced features with CPU Vcore, 1.5V reference, VCC3 (3.3V) , VBAT3V, +5VSB, CPUA/B Temperature, and System Temperature Values viewing
	•	CPU/Power/System Fan Revolution Detect
	•	CPU shutdown when overheat
	•	System Voltage Detect
On-Board LAN	•	Dual Intel® 82573GbE controllers
	•	Supports WOL, PXE
	•	Flexible hardware design to switch remote transactions through IPMI interface
BIOS	•	Phoenix BIOS on 8Mb flash ROM
Special Features	•	Ehanced feature with GSMT Lite Utility
Additional Features	•	PS/2 Mouse wake up from S1 under Windows Operating System
	•	External Modem wake up
	•	Supports S1, S4, S5 under Windows Operating System
	•	Wake on LAN (WOL)
	•	Wake on Ring (WOR)
	•	AC Recovery
	•	Supports Console Redirection
	•	Supports 4-pin Fan controller

1.2 GA-5EASV-RH Motherboard Components

1. CPU
2. Intel Mukilteo-2
3. Intel ICH7R
4. XGI Volari Z7
5. Hynix 574U
6. ITE IT8718F
7. Intel 82573GbE
8. BIOS Flash
9. IDE Connector
10. Floppy Connector
11. COM2 Connector
12. Front USB1 Connector
13. Front USB2 Connector
14. SATA1 Connector
15. SATA2 Connector
16. SATA3 Connector
17. SATA4 Connector
18. UF1 (CPU Fan Connector)
19. UF2 (System Fan Connector)
20. UF3 (System Fan Connector)
21. Front Panel Connector
22. Auxiliary Power (ATX1)
23. Auxiliary Power (ATX 12V)
24. PCI1 Slot(32bit/33MHz)
25. PCI2 Slot(32bit/33MHz)
26. PCI-E x8 Slot
27. PCI-E x4 Slot
28. DIMM1
29. DIMM2
30. DIMM3
31. DIMM4
32. RJ45 LAN/USB ports
33. VGA Port
34. Parallel Port
35. COM Port
36. PS/2 Connectors
37. Battery


20
33
34
35
36
32
32
4
5
7
7
23
24
25
26
27
21
18
1
37
12
2
3
13
8
28
29
9
30
15
31
11
6
10
17
14
16
19
22

Chapter 2 Hardware Installation Process

2-1: Installing Processor and CPU Haet Sink

CAUTION

Before installing the processor and cooling fan, adhere to the following cautions:

1. The processor will overheat without the heatsink and/or fan, resulting in permanent irreparable damage.
2. Never force the processor into the socket.
3. Apply thermal grease on the processor before placing cooling fan.
4. Please make sure the CPU type is supported by the motherboard.
5. If you do not match the CPU socket Pin 1 and CPU cut edge well, it may damage the CPU. Please change the insert orientation.

2-1-1: Installing CPU

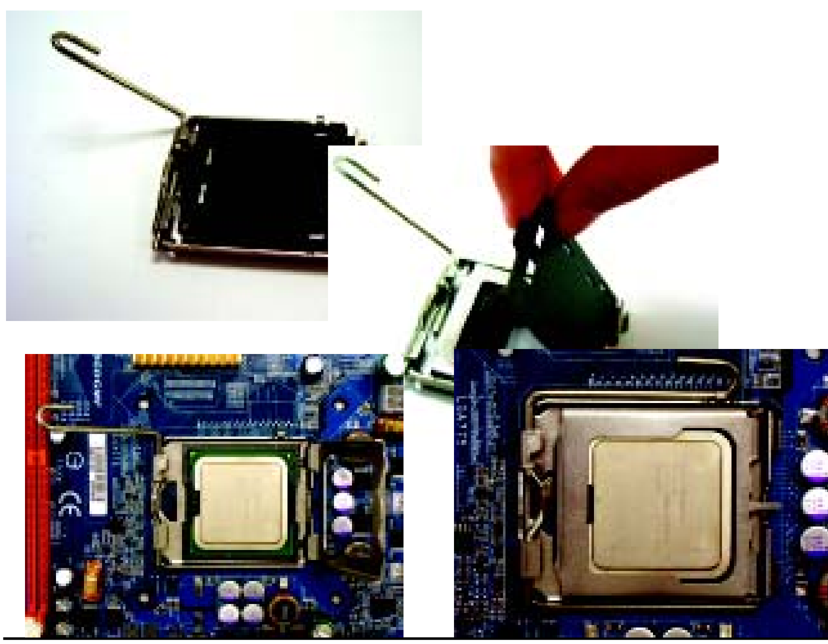
Step 1 Raise the metal locking lever on the socket.

Step 2 Remove the plastic covering on the CPU socket.

Step 3 Lift the metal cover.

Step 4 Insert the CPU with the correct orientation. The CPU only fits in one orientation.

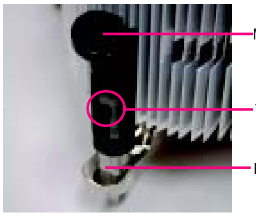
Step 5 Once the CPU is properly placed, please replace the metal cover and push the metal lever back into locked position.



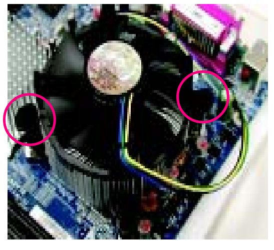
2-1-2: Installing Heat Sink



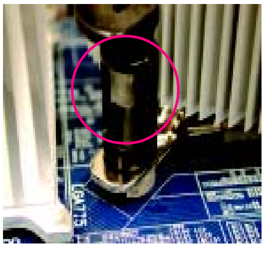
Step 1.
Please apply heat sink paste on the surface of the installed CPU.



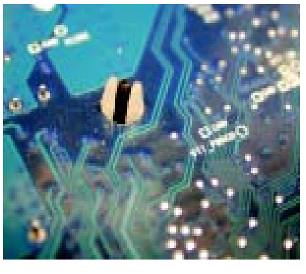
Step. 2
(to remove the heat sink, turning the push pin along the direction of arrow; and reverse the previous step to install the heat sink.)
Please note the direction of arrow sign on the male push pin doesn't face inwards before installation. (This instruction is only for Intel boxed fan)



Step. 3
Place the heat sink on top the CPU and make sure the push pins align to the pin hole on the motherboard.Push down the push pins diagonally.



Step. 4
Please make sure the Male and Female push pin are brought together. (for detailed installation instructions, please refer to the heat sink installation section of the user manual)



Step. 5
Please check the back side of teh motherboard. Make sure the push pin is seated firmly as the picture shown.



Step 6.
Attach the power connector of the heat sink to the CPU fan header located on the motherboard. Heat sink installation is completed.

2-2: Install Memory Modules



CAUTION

Before installing the processor and heatsink, adhere to the following warning:
When DIMM LED is ON, do not install/remove DIMM from socket.

GA-5EASV-RH has 4 dual inline memory module (DIMM) sokcets. It supports Dual Channels Technology. The BIOS will automatically detects memory type and size during system boot. For detail DIMM installation, please refer to the following instructions.

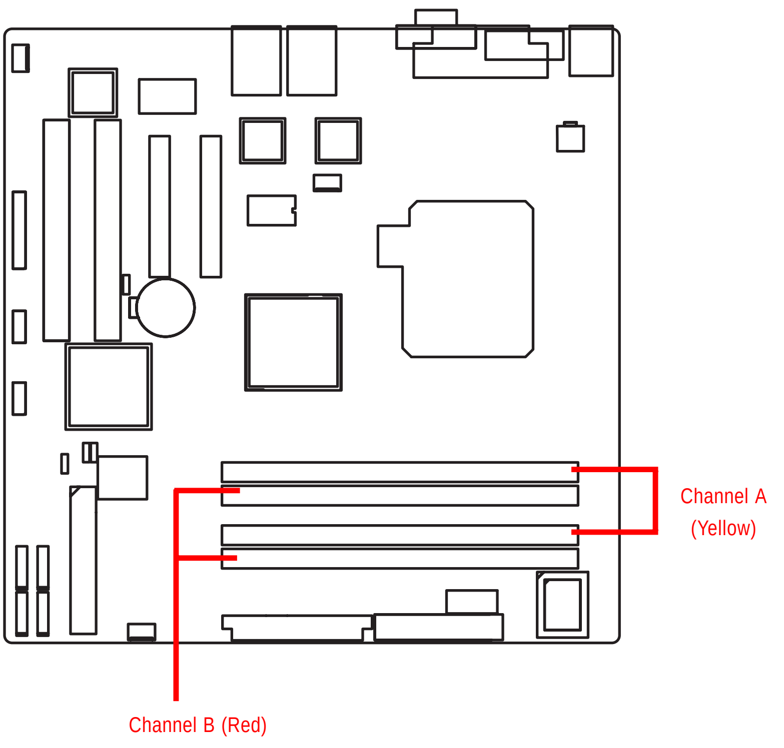


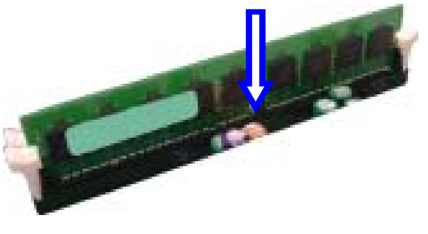
Table 1. Supported DIMM Module Type

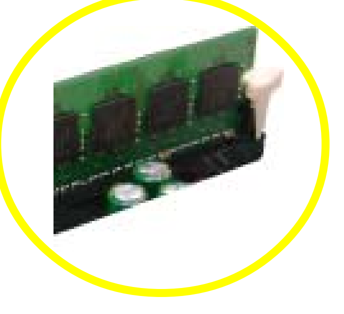
Size	Organization	RAM Chips/DIMM
256MB	8MB x 8 x 4 bks	8
	16MB x 4 x 4bks	16
512MB	16MB x 8 x 4bks	8
	32MB x 4 x 4bks	16
1GB	32MB x 8 x 4bks	8
	64MB x 4 x 4bks	16

Installation Steps:

1. Unlock a DIMM socket by pressing the retaining clips outwards.
2. Aling a DIMM on the socket such that the notch on the DIMM exactly match the notch in the socket.
3. Firmly insert the DIMMinto the socket until the retaining clips snap back in place.
4. When installing the memory into the DIMM socket, we recommend to populate the memory as a pair. One in Channel A module and one in Channel B module for best performance. Please populate DIMM starting from Channel A (Yellow slot).
   Note that each logical DIMM must be made of two identical DIMMs having the same device size on each and the same DIMM size.

5. Reverse the installation steps if you want to remove the DIMM module.

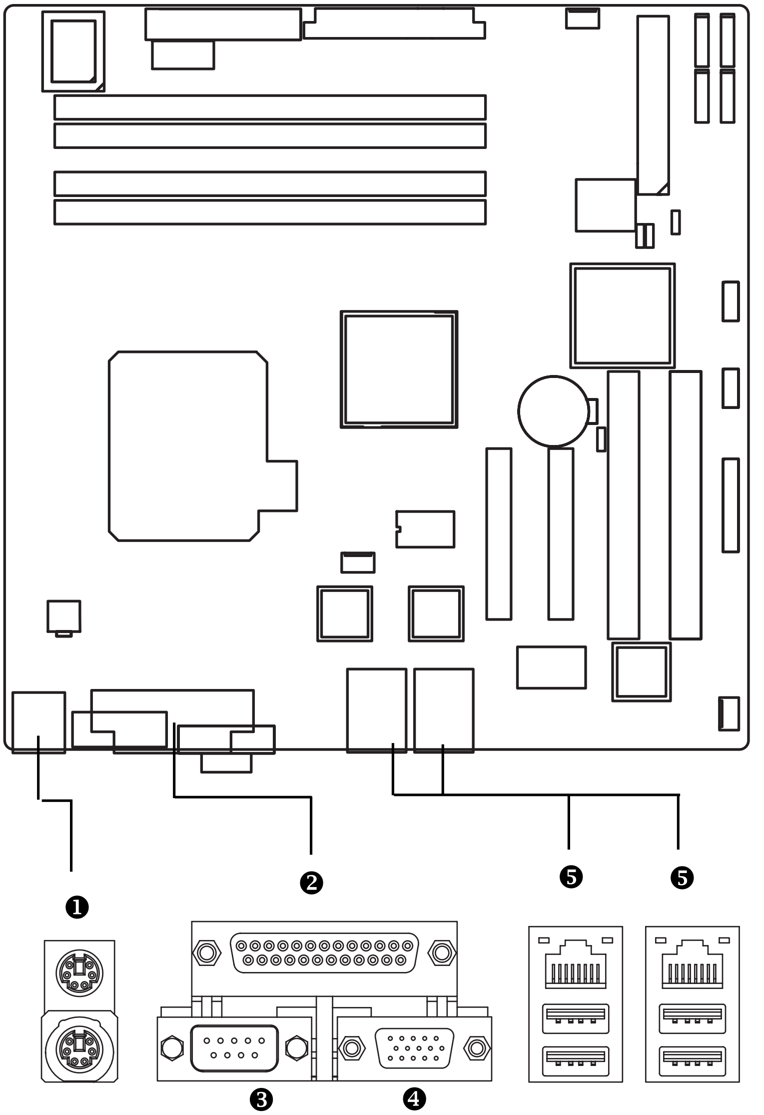




Locked Retaining Clip

2-3: Connect ribbon cables, cabinet wires, and power supply

2-3-1 : I/O Back Panel Introduction



❶ PS/2 Keyboard and PS/2 Mouse Connector

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).

❷/❸/❹ Parallel Port / Serial Port / VGA Port

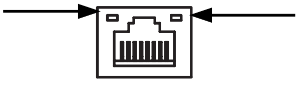
This connector supports 1 standard COM port and 1 Parallel port. Device like printer can be connected to Parallel port ; mouse and modem etc can be connected to Serial port.

❺ LAN Port / USB

Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface.
Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver updated. For more information please contact your OS or device(s) vendors.

LAN LED Description

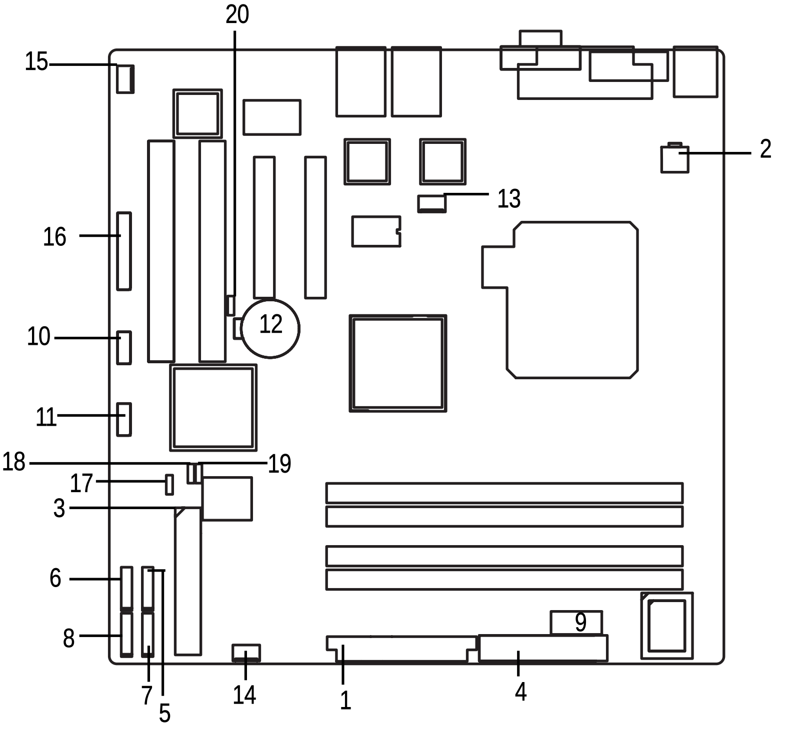
LED2 (Green/Yellow)



LED1 (Green)

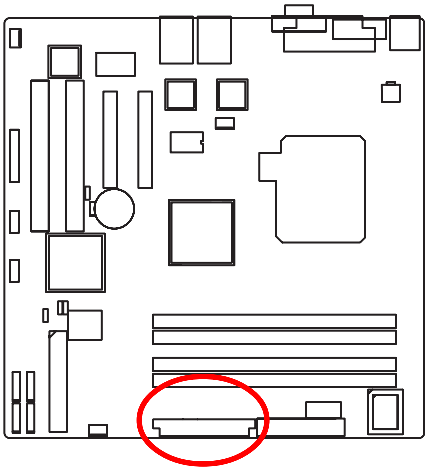
Name	Color	Condition	Description
LED1	Green	ON	LAN Link / no Access
	Green	BLINK	LAN Access
	-	OFF	Idle
LED2	-	OFF	10Mbps connection
	Green	BLINK	Port identification with 10 Mbps connection
	Green	ON	100Mbps connection
	Green	BLINK	Port identification with 100Mbps connection
	Yellow	ON	1Gbps connection
	Yellow	BLINK	Port identification with 1Gbps connection

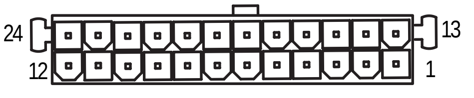
2-4: Connectors Introduction & Jumper Setting



1. ATX1
2. ATX2
3. IDE1 (IDE Connector)
4. FDC1 (Floppy Connector)
5. SATA 1 (SATA Connector)
6. SATA 2 (SATA Connector)
7. SATA 3 (SATA Connector)
8. SATA 4 (SATA Connector)
9. COM2
10. F_USB1 (Front USB Connector)
11. F_USB2 (Front USB Connector)
12. BAT1 (Battery)
13. UF1 (CPU Fan Connector)
14. UF2 (System Fan Connector)
15. UF3 (System Fan Connector)
16. F_Panel (Front Panel Connector)
17. CLR_CMOS (Clear CMOS)
18. PASSWORD1
19. BIOS_WP1
20. RECOVERY1

1) ATX1 (Auxukiary Power Connector)

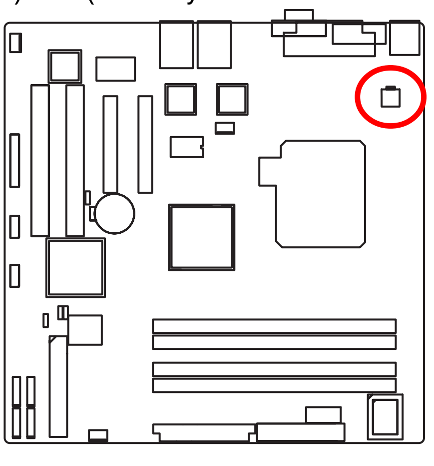


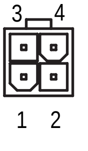


PIN No.	Definition
1	+3.3V
2	+3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	POK
9	5VSB
10	+12V
11	+12V
12	+3.3V
13	+3.3V
14	-12V
15	GND
16	PSON
17	GND
18	GND
19	GND
20	-5V
21	+5V
22	+5V
23	+5V
24	GND

- ➢ AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

2) ATX2 (Auxukiary +12V Power Connector)



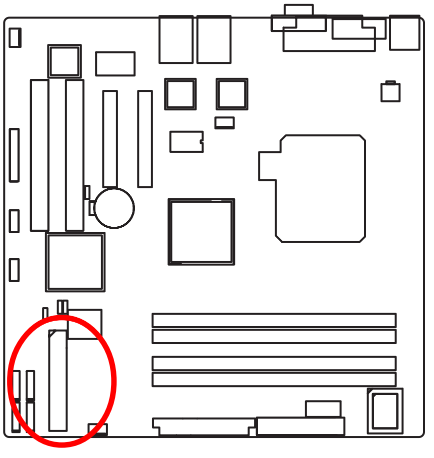


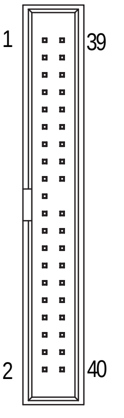
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

➢This connector (ATX +12V) is used only for CPU Core Voltage.

3) IDE1 (IDE Connector)

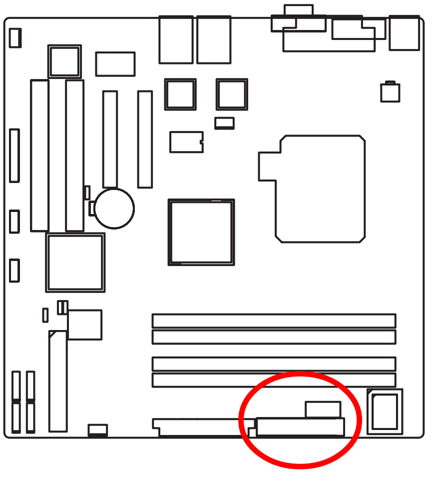
Please connect first harddisk to IDE1. The red stripe of the ribbon cable must be the same side with the Pin1.

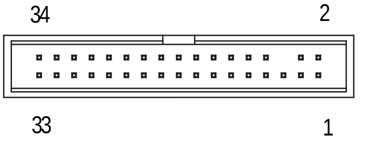




4) FDC1 (Floppy Connector)

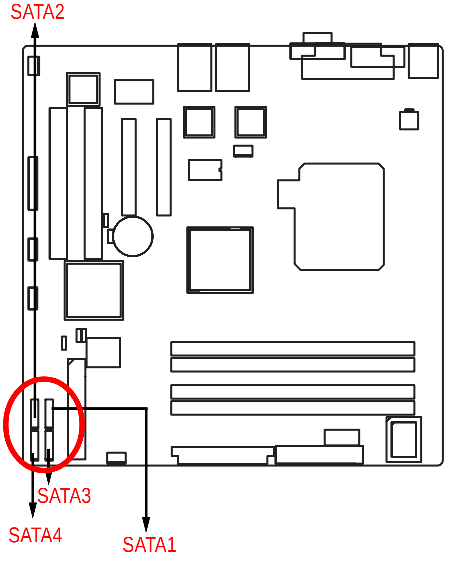
Please connect the floppy drive ribbon cables to FDD. It supports 720K,1.2M,1.44M and 2.88Mbytes floppy disk types. The red stripe of the ribbon cable must be the same side with the Pin1.

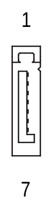




5/ 6/ 7/ 8) SATA 1~4 (Serial ATA Connectors)

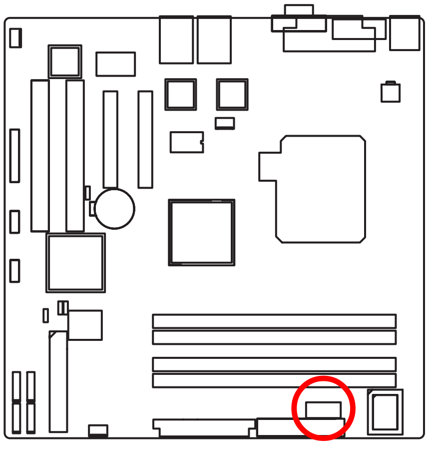
You can connect the Serial ATA device to this connector, it provides you high speed transfer rates (150MB/sec).

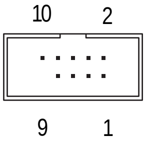




Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

9) COM2

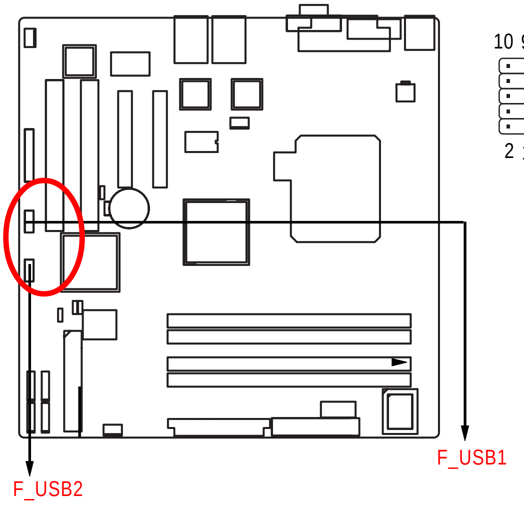


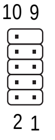


Pin No.	Definition
1	DCD-
2	SIN2
3	SOUT2
4	DTR2-
5	GND
6	DSR2-
7	RTS2-
8	CTS2-
9	RI2-
10	NC

10/ 11) F_USB1/2 (Front USB Connectors)

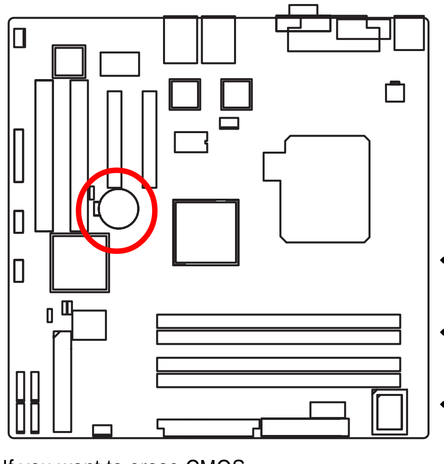
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.

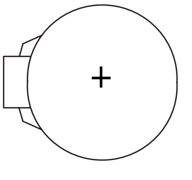




Pin No.	Definition
1	Power
2	Power
3	USB Dx-
4	USB Dy-
5	USB Dx+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

12) Battery





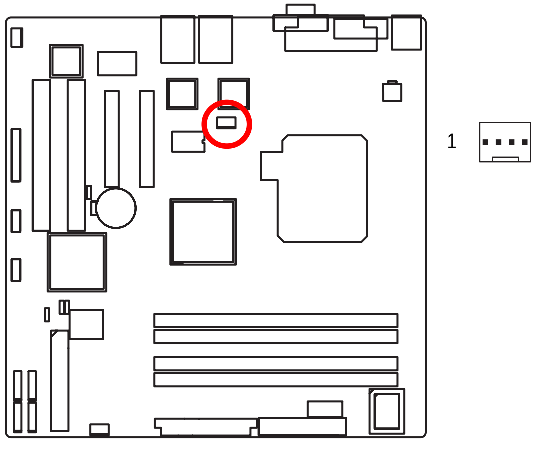
CAUTION

- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...
1.Turn OFF the computer and unplug the power cord.
2.Remove the battery, wait for 30 second.
3.Re-install the battery.
4.Plug the power cord and turn ON the computer.

13) UF1 (CPU Fan Connectors)

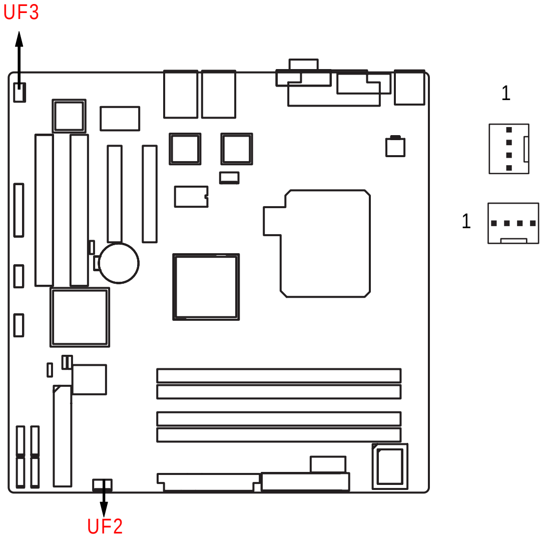
Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 1A .



Pin No.	Definition
1	GND
2	12V
3	Sense
4	Control

14/ 15) UF2/3/4/5 (System Fan Connectors)

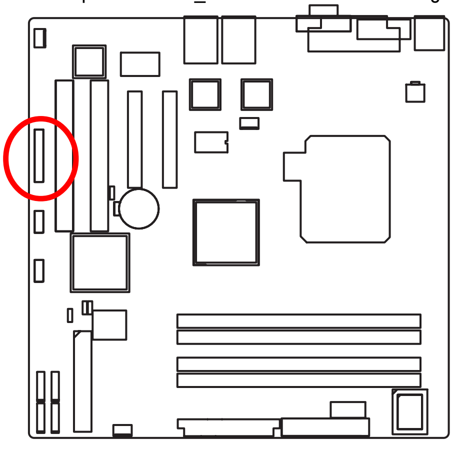
This connector allows you to link with the cooling fan on the system case to lower the system temperature. These connectors are for system use only.

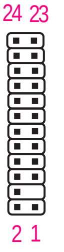


Pin No.	Definition
1	GND
2	12V
3	Sense
4	Control

16) F_Panel (2X12 Pins Front Panel connector)

Please connect the power LED, PC speaker, reset switch and power switch of your chassis front panel to the F_PANEL connector according to the pin assignment above.



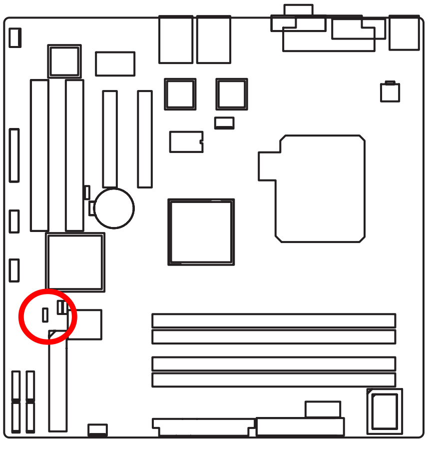


Pin No.	Signal Name	Description
1.	PWLED+	Power LED Signal anode (+)
2.	5VSB	P5V Stand By Power
3.	KEY	Pin Removed
4.	ID_LED+	ID LED Signal anode (+)
5.	PWLED-	Power LED Signal cathode(-)
6.	ID_LED-	ID LED Signal cathode(-)
7.	HD+	Hard Disk LED Signal anode (+)
8.	F_SYSRDY	System Fan Fail LED Signal
9.	HD-	Hard Disk LED Signal cathode(-)
10.	F_SYSTATUS	System Status LED Signal
11.	PWB+	Power Button Signal anode (+)
12.	L1_ACT	LAN1 access LED Signal
13.	PWB+_GND	Power Button Ground
14.	L1_LNK-	LAN1 linked LED Signal cathode(-)
15.	RST_BTN-	Reset Button cathode(-)
16.	SENSOR_SDA	SMBus Data
17.	RST_BTN_GND	Reset Button Ground
18.	SENSOR_SCL	SMBus Clock
19.	ID_SW-	ID Switch Signal cathode(-)
20.	CASE_OPEN-	Chassis intrusion Signal
21.	ID_SW-_GND	ID Switch Ground
22.	L2_ACT	LAN2 access LED Signal
23.	NMI_SW-	NMI Switch cathode(-)
24.	L2_LNK-	LAN2 linked LED Signal cathode(-)

17) CLR_CMOS1 (Clear CMOS Function)

You may clear the CMOS data to restore its default values by this jumper.

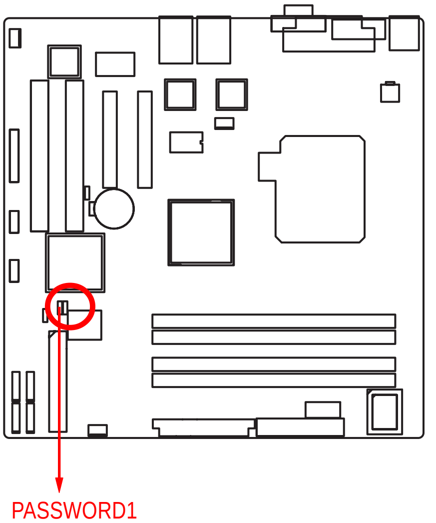
Default value doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.



1 1-2 Close: Normal (Default value)

1 2-3 Close: Clear CMOS

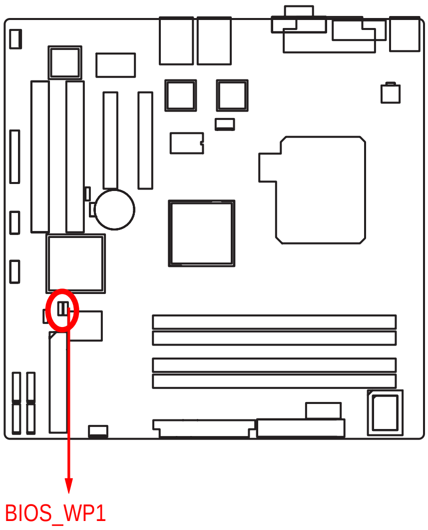
18) PASSWORD1 (Skip Password Function)



1 1-2 Close: Normal (Default value)

1 2-3 Close: Skip Supervisor Password in BIOS setup menu

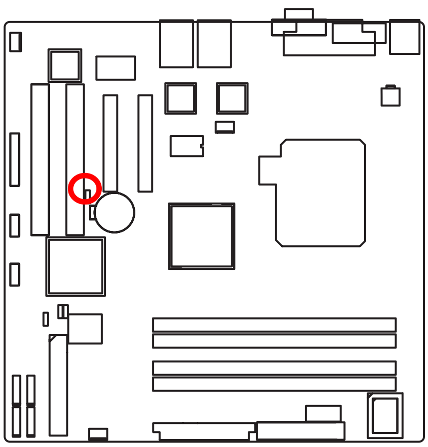
19) BIOS_WP1 (BIOS Write Protect Function)



1 1-2 Close: Normal (Default value)

1 2-3 Close: Enable CMOS Write Protection Function

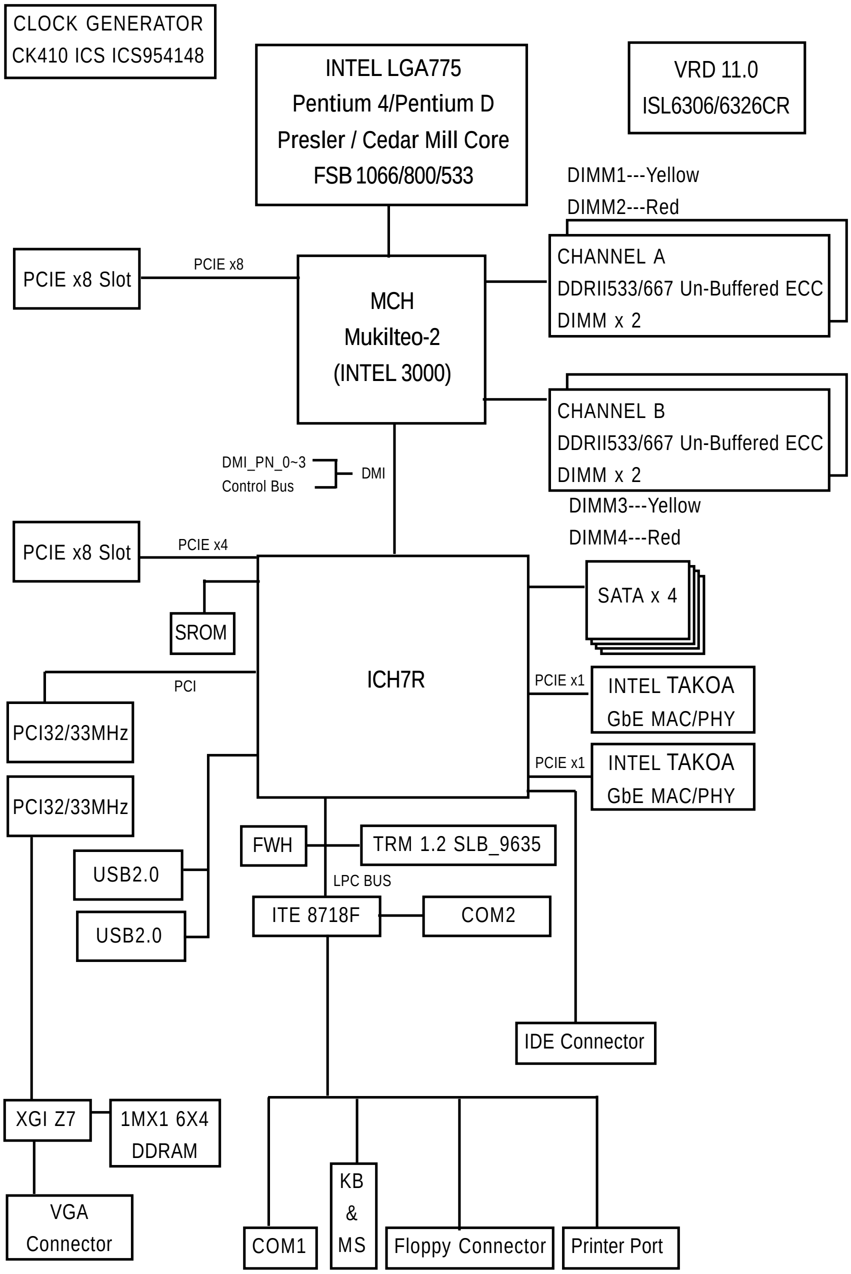
20) RECCOVERY1 (BIOS Recovery Function)



1 1-2 Close: Enable BIOS Recovery function.

1 2-3 Close: Normal (Default value)

2-5: Block Diagram



Chapter 3 BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERINGSETUP

Power ON the computer and press <F2> immediately will allow you to enter Setup.

CONTROLKEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F6>	Reserved
<F7>	Reserved
<F8>	Reserved
<F9>	Load the Optimized Defaults
<F10>	Save all the CMOS changes, only for Main Menu

GETTINGHELP

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

- **Main**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced**

  This setup page includes all the items of AMI special enhanced features.

  (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.)

- **Security**

  Change, set, or disable password. It allows you to limit access the system and setup.

- **Server**

  Server additional features enabled/disabled setup menus.

- **Boot**

  This setup page include all the items of first boot function features.

- **Exit**

  There are five optionsin this selection: Exit Saving Changes, Exit Discarding Changes, Load Optimal Defaults, Load Failsafe Defaults, and Discard Changes.

Main

Once you enter Phoenix BIOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

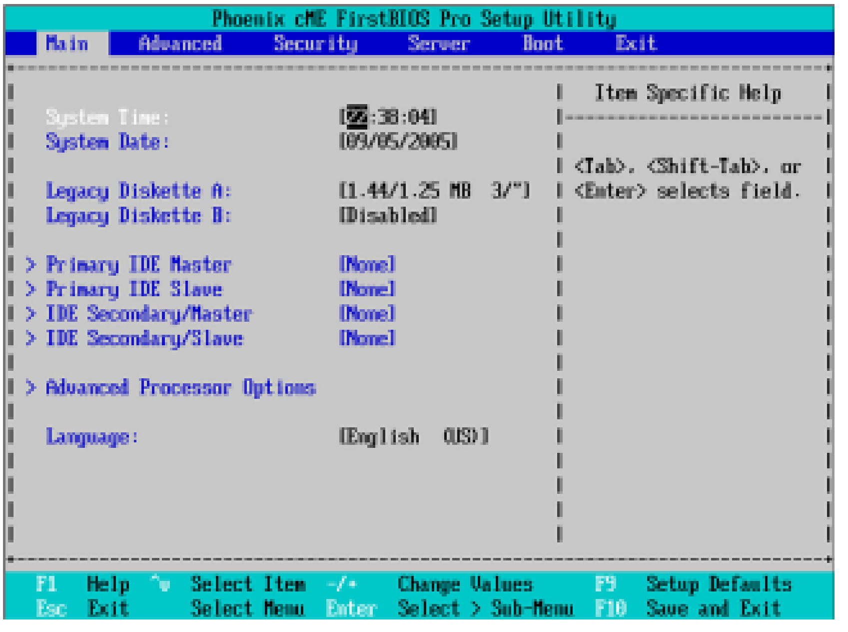


Figure 1: Main

☞ System Time

The time is calculated based on the 24-hour military time clock. Set the System Time (HH:MM:SS)

☞ System Date

Set the System Date. Note that the "Day" automatically changed after you set the date. (Weekend: DD: MM: YY) (YY: 1099~2099)

☞ Legacy Diskette A/B

This category identifies the type of floppy disk drive A that has been installed in the computer.

- ▸▸Disabled Disable this device.
- ▸▸360KB, $5^{1/4}$ in. $3^{1/2}$ inch AT-type high-density drive; 360K byte capacity
- ▸▸1.2MB, $3^{1/2}$ in. $3^{1/2}$ inch AT-type high-density drive; 1.2M byte capacity
- ▸▸720K, $3^{1/2}$ in. $3^{1/2}$ inch double-sided drive; 720K byte capacity
- ▸▸1.44M, $3^{1/2}$ in. $3^{1/2}$ inch double-sided drive; 1.44M byte capacity.
- ▸▸2.88M, $3^{1/2}$ in. $3^{1/2}$ inch double-sided drive; 2.88M byte capacity.

Note: The 1.25MB,$3^{1/2}$ reference a 1024 byte/sector Japanese media format. The 1.25MB,$3^{1/2}$ diskette requires 3-Mode floppy-disk drive.

☞ IDE Primary Master, Slave / Secondary Master, Slave, Parallel ATA

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

▸▸ TYPE

1-39: Predefined types.

Users: Set parameters by User.

Auto: Set parameters automatically. (Default Vaules)

CD-ROM: Use for ATAPI CD-ROM drives or double click [Auto] to set all HDD parameters automatically.

ATAPI Removable: Removable disk drive is installed here.

▸▸ Multi-Sector Transfer

This field displays the information of Multi-Sector Transfer Mode.

Disabled: The data transfer from and to the device occurs one sector at a time.

Auto: The data transfer from and to the device occurs multiple sectors at a time if the device supports it.

▸▸ LBA Mode	This field shows if the device type in the specific IDE channel support LBA Mode.
▸▸ 32-Bit I/O	Enable this function to max imize the IDE data transfer rate.
▸▸ Transfer Mode	This field shows the information of Teansfer Mode.
▸▸ Ultra DMA Mode	This filed displays the DMA mode of the device in the specific IDE channel.

☞ Language

This category allows user to select prefered language.

▸▸Options	English, Francais, Deutsch, Espanol, Italiano.

Advanced Processor Options

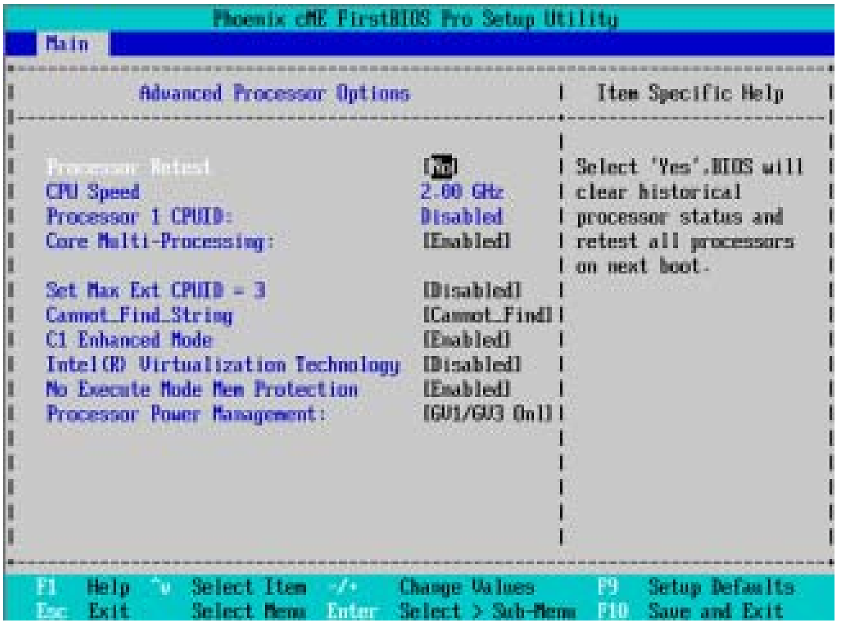


Figure 1-1: Advanced Processor Option

☞ Advanced Processor Option

This category includes the information of CPU Speed, and Processor 1 CPUID. Setup menu for C1 Enhanced Mode, and No Execute Mode Memory Protection.

☞Processor Reset

►►Yes	Select 'Yes' BIOS will clear historical processor status and reset all processors on next boot.
►►No	Disables Processor Reset function. (Default value)

☞Core Multi-Processing

Determines whether the 2nd core is enabled.

►►Enabled	Enable 2nd core.
►►Disabled	Disables P2nd core.

☞Set Max Ext CPUID = 3

Set MAX CPUID extended function value to 3.

- ▸▸Enabled Enable Set Max Ext CPUID = 3 function.
- ▸▸Disabled Disable this function. (Default value)

☞C1 Enhanced Mode

With enabling C1 Enhanced Mode, all loical processors in the physical processor have entered the C1 state, the processor will reduce the core clock frequency to system bus ratio and VID.

- ▸▸Enabled Enabled C1 Enhanced Mode.
- ▸▸Disabled Disables C1 Enhanced Mode. (Default value)

☞Intel (R) Virtualization Technology

Intel(R) Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple "virtual" systems. With processor and I/O enhancements to Intel's various platforms, Intel Virtualization Technology can improve the performance and robustness of today's software-only virtual machine solutions.

- ▸▸Enabled Enabled VT Feature.
- ▸▸Disabled Disables VT Feature. (Default value)

☞No Execute Mode Mem. Protection

- ▸▸Enabled Enable No Execute Mode Memory Protection function. (Default value)
- ▸▸Disabled Disables No Execute Mode Memory Protection function.

☞Processor Power Management

Select the Power Management desired:

- ▸▸Enabled C states and GV1/GV3 are enabled.
- ▸▸C States Only GV1/GV3 are disabled.
- ▸▸GV1/GV3 Only C states are disabled. (Default value)
- ▸▸Disabled C states and GV1/GV3 are disabled.

Advanced

About This Section: Advanced

With this section, allowing user to configure your system for basic operation. User can change the processor options, chipset configuration, PCI configuration and chipset control.

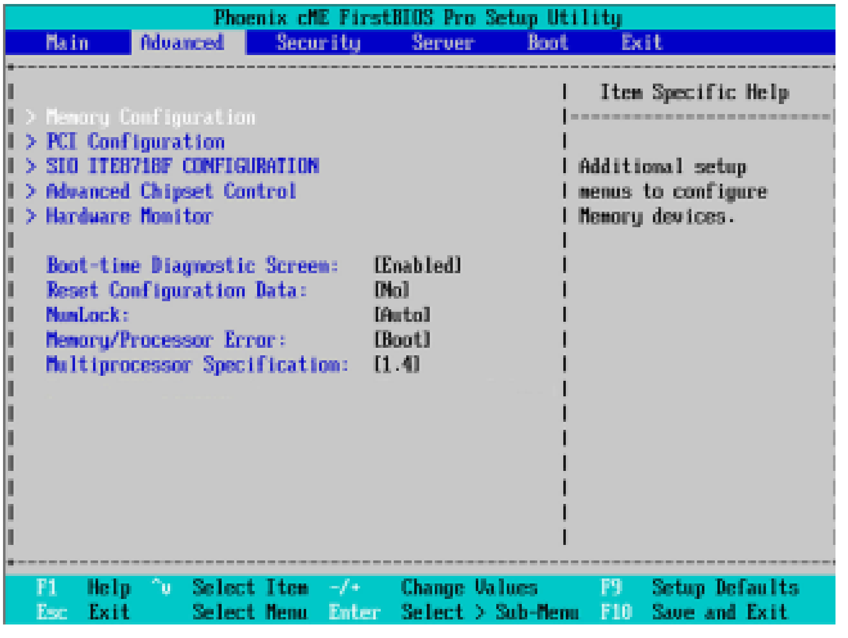


Figure 2: Advanced

Memory Configuration

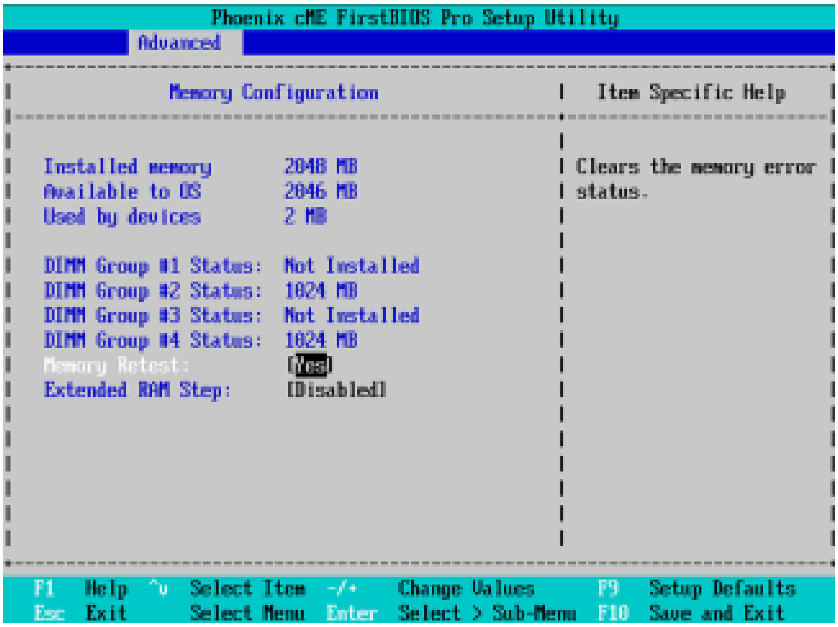


Figure 2-1: Memory Configuration

☞Installed Memory/Available to OS/Used by devices/ DIMM Group 1,2,3,4 Status

These category is display-only which is determined by POST (Power On Self Test) of the BIOS.

☞Memory Reset

⏩Yes	Select 'Yes', system will clear the memory error status. Save the changes and restart system. After rebooting system, the Memory Reset item will set to 'No' automatically.
⏩No	Disable this function. (Default value)

☞Extend RAM Step

⏩Enabled	Enable test extended memroy process.
⏩Disabled	Disable this function. (Default value)

PCI Configuration

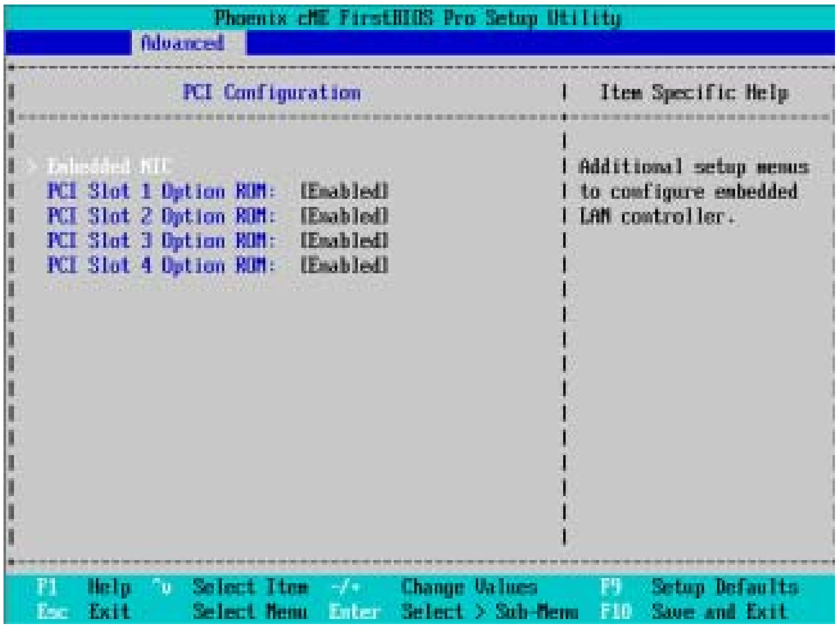


Figure 2-2: PCI Configuration

☞Embedded NIC

▸ Onboard LAN Control

▸▸Enabled	Enable onboard LAN device. (Default value)
▸▸Disabled	Disable this function.

▸ Option ROM Scan

▸▸Enabled	Enableing this item to initialize device expansion ROM.
▸▸Disabled	Disable this function. (Defualt value)

☞PCI Slot 1/2/3/4 Option ROM

▸▸Enabled	Enableing this item to initialize device expansion ROM. (Defualt value)
▸▸Disabled	Disable this function.

SIO ITE8718F Configuration

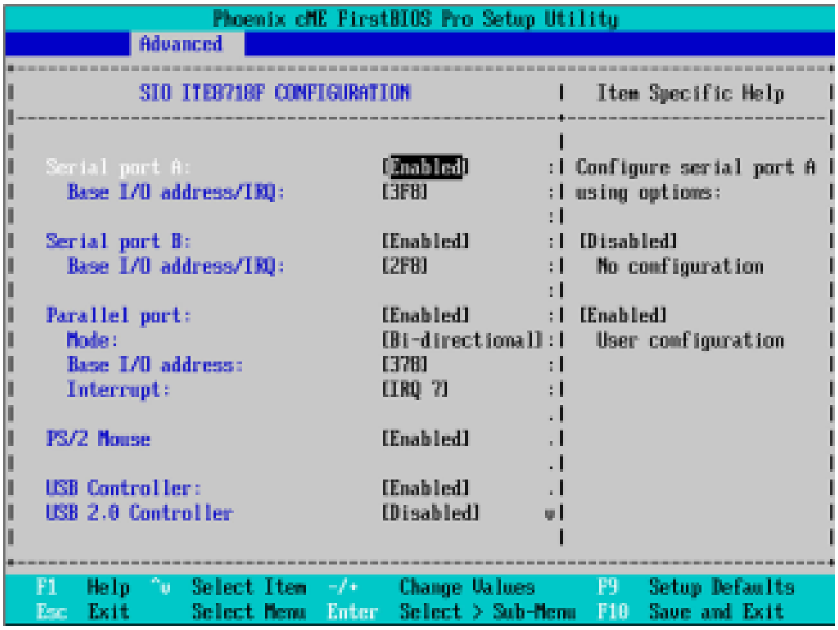


Figure 2-3: SIO ITE8718F Configuration

☞Serial Port A

This allows users to configure serial prot A by using this option.

▸▸Enabled Enable the configuration (Default value)

▸▸Disabled Disable the configuration.

▸ Base I/O Address/IRQ

▸▸3F8 Set IO address to 3F8. (Default value)

▸▸2F8 Set IO address to 2F8.

▸▸3E8 Set IO address to 3E8.

▸▸2E8 Set IO address to 2E8.

☞Serial Port B

This allows users to configure serial prot B by using this option.

▸▸Enabled Enable the configuration

▸▸Disabled Disable the configuration.(Default value)

▸ Base I/O Address/IRQ

▸▸3F8 Set IO address to 3F8.

▸▸2F8 Set IO address to 2F8. (Default value)

▸▸3E8 Set IO address to 3E8.

▸▸2E8 Set IO address to 2E8.

☞Parallel Port

This allows users to configure parallel port by using this option.

▸▸Enabled	Enable the configuration.
▸▸Disabled	Disable the configuration. (Default value)

▸ Mode

This option allows user to set Parallel Port transfer mode.

▸▸Bi-directional	Use this setting to support bi-directional transfers on the parallel port. (Default value)
▸▸EPP	Using Parallel port as Enhanced Parallel Port.
▸▸ECP	Using Parallel port as Extended Capabilities Port.

▸ Base I/O Address

▸▸378	Set IO address to 378
▸▸278	Set IO address to 278.

▸ Iterrupt

▸▸IRQ5	Set Interrupt as IRQ5. (Default value)
▸▸IRQ7	Set Interrupt as IRQ7. (Default value)

☞PS/2 Mouse

Set this option 'Enabled' to allow BIOS support for a PS/2 - type mouse.

▸▸Enabled	'Enabled' forces the PS/2 mouse port to be enabled regardless if a mouse is present. (Default value)
▸▸Disabled	'Disabled' prevents any installed PS/2 mouse from functioning, but frees up IRQ12.

☞USB Controller

This item allows users to enable or disable the USB device by setting item to the desired value.

▸▸Enabled	Enable USB controller. (Default value)
▸▸Disabled	Disbale this function.

☞USB 2.0 Controller

This item allows users to enable or disable the USB 2.0 device by setting item to the desired value.

▸▸Enabled	Enable USB 2.0 controller.
▸▸Disabled	Disbale this function. (Default value)

☞Legacy USB Support

This option allows user to function support for legacy USB.

▸▸Enabled	Enables support for legacy USB (Default Value)
▸▸Disabled	Disables support for legacy USB

☞Route Port 80h cycles to

Set route port 80h cycles to either PCI or LPC bus.

▸▸PCI	Set Route Port 80h I/O cycles to the PCI bus. (Default Value)
▸▸LPC	Set Route Port 80h I/O cycles to the LPC bus.

☞Parallel ATA

▸▸Enabled	Enable Parallel ATA. (Default value)
▸▸Disabled	Disable the device.

☞Serial ATA

- ▸▸Enabled Enables on-board serial ATA function. (Default Value)
- ▸▸Disabled Disables on-board serial ATA function.

▸ Native Mode Operation

This option allows user to set the native mode for Serial ATA function.

- ▸▸Auto Auto detected. (Default value)
- ▸▸Serial ATA Set Native mode to Serial ATA.

▸ SATA Controller Mode Option

- ▸▸Compatible Mode SATA and PATA drives are auto-detected and placed in Legacy mode. (Default value)
- ▸▸Enhanced Mode SATA and PATA drives are auto-detected and placed in Native mode.

Note: Pre-Win2000 operating system do not work in Enhanced mode.

▸ SATA AHCI Enable

- ▸▸Enabled Set this item to enable SATA AHCI function for WinXP-SP1+IAA driver supports AHCI mode.
- ▸▸Disabled Disabled this function.

▸ SATA RAID Enable

- ▸▸Enabled Enabled SATA RAID function.
- ▸▸Disabled Disable this function.

Advanced Chipset Control

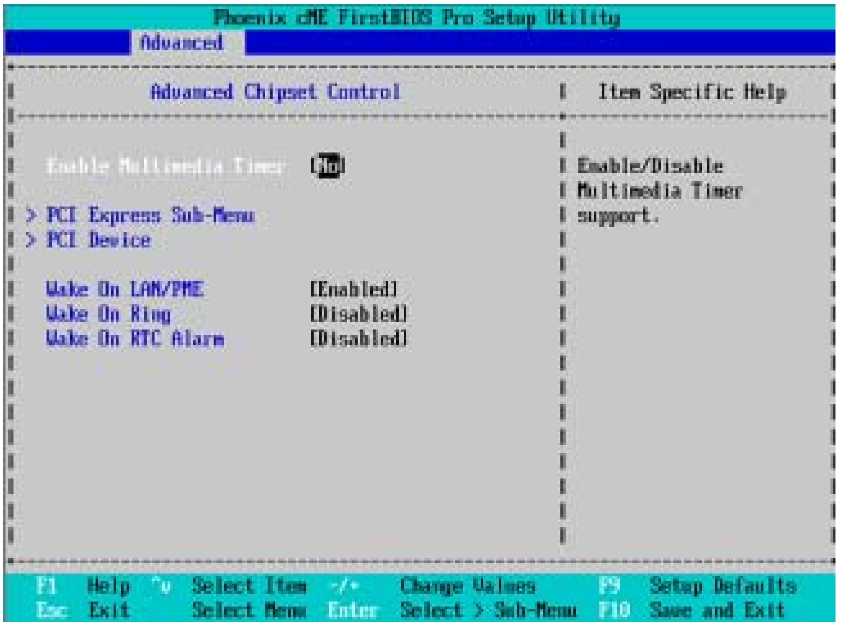


Figure 2-4: Advanced Chipset Control

☞Enable Multimedia Timer

- ▶▶Enabled — Enable Multimedia Timer support.
- ▶▶Disabled — Disable this function. (Default value)

☞PCI Express Sub-Menu

These items are for debugging the PCI-Express Ports.

☞PCI Device

▶ PCI IRQ Line 1/2/3/4

When ACPI device cannot use IRQs already in use by ISA or EISA devices. Use 'Auto Select' only if no ISA or EISA legacy cards are installed.

▶▶Auto Select	Auto selecting PCI IRQ lines. (Default value)
▶▶3,4,5,7,9,10,11,12,14,15	Select specify PCI IRQ lines.
▶▶Disabled	Disable this function..

☞Wake On LAN / PME

This option allow user to determine the action of the system when a LAN/PME wake up event occurs.

▶▶Enabled	Enable Wake On LAN/PME. (Default value)
▶▶Disabled	Disable this function.

Note: This item must enabled if you're running under Windows operating system.

☞Wake On Ring

This option allow user to determine the action of the system power is off and the modem is ringing.

▶▶Enabled	Enable Wake On Ring. (Default value)
▶▶Disabled	Disable this function.

Note: This item must enabled if you're running under Windows operating system.

☞Wake On RTC Alarm

When "RTC Alarm Resume" item is set to enabled, system will wakeup from RTC. (This item will be functionalized under ACPI OS)

▶▶Enabled	Enable alarm function to POWER ON system. (Default value)
▶▶Disabled	Disable this function.

Note: This item must enabled if you're running under Windows operating system.

Hardware Monitor

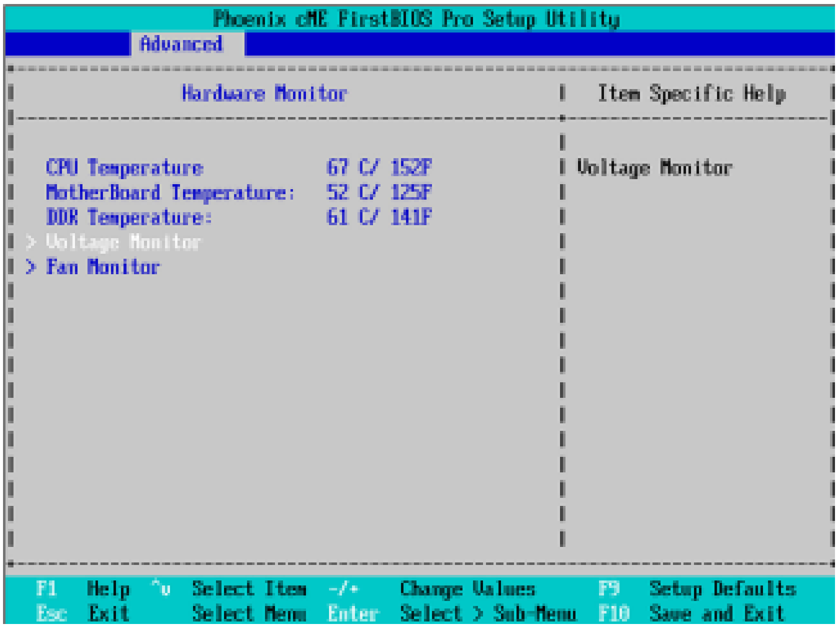


Figure 2-5: Hardware Monitor

☞ CPU / Motherboard/ DDR Temperature

⏩Display the current CPU temperature, Motherboard, and Ambient temperature.

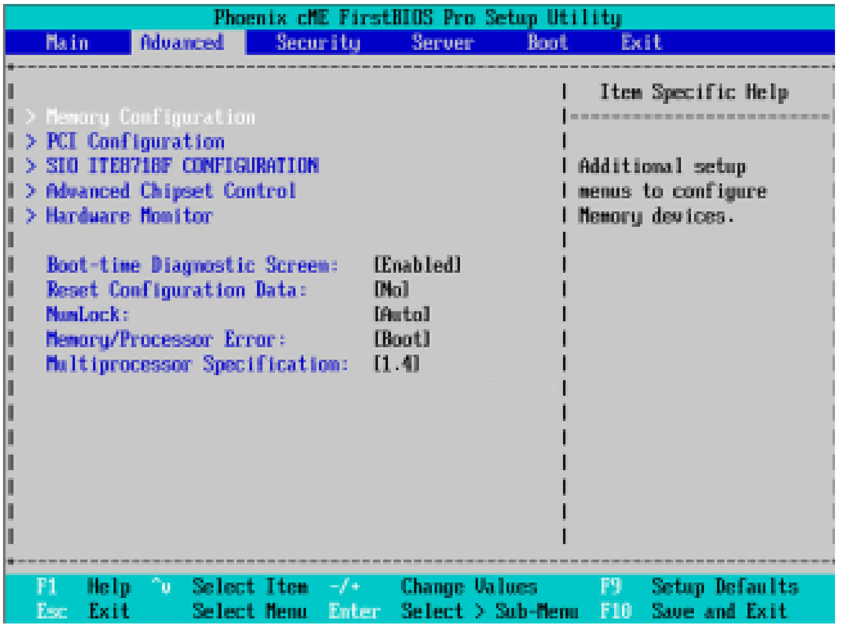
☞ Voltage Monitor: DDR1V8, VCC3, VCORE, 12V2, 5V

⏩Detect system's voltage status automatically.

☞ FAN Monitor: System 1/2/3 (RPM)

⏩Display the current System FAN 1/2/3 speed.

This Menu will disappear when BMC module is populated.



☞Boot -time Diagnostic

When this item is enabled, system will shows Diagnostic status when system boot.

- ⏩ Enabled — Enable Boot-time Diagnostic.
- ⏩ Disabled — Disable this function. (Default value)

☞Reset Configuration Data

- ⏩ Yes — Reset all configuration data.
- ⏩ No — Do not make any changes. (Default value)

☞NumLock

This option allows user to select power-on state for NumLock.

- ⏩ On — Enable NumLock.
- ⏩ Off — Disable this function.

☞Memory Processor Error

When Boot is selected, the system will attempt to boot after a memory or proocessor error occured.

- ▸▸ Boot — System attempts to boot if a memory or proocessor error cooured. (Default value)
- ▸▸ Halt — System will stop if an error is detected during power up.

☞Multiprocessor Specification

This option allows user to configure the multiprocessor(MP) specification revision level. Some operating system will require 1.1 for compatibility reasons.

- ▸▸ 1.4 — Support MPS Version 1.4 . (Default value)
- ▸▸ 1.1 — Support M PS Version 1.1.

Security

☝ About This Section: Security

In this section, user can set either supervisor or user passwords, or both for different level of password securities. In addition, user also can set the virus protection for boot sector.

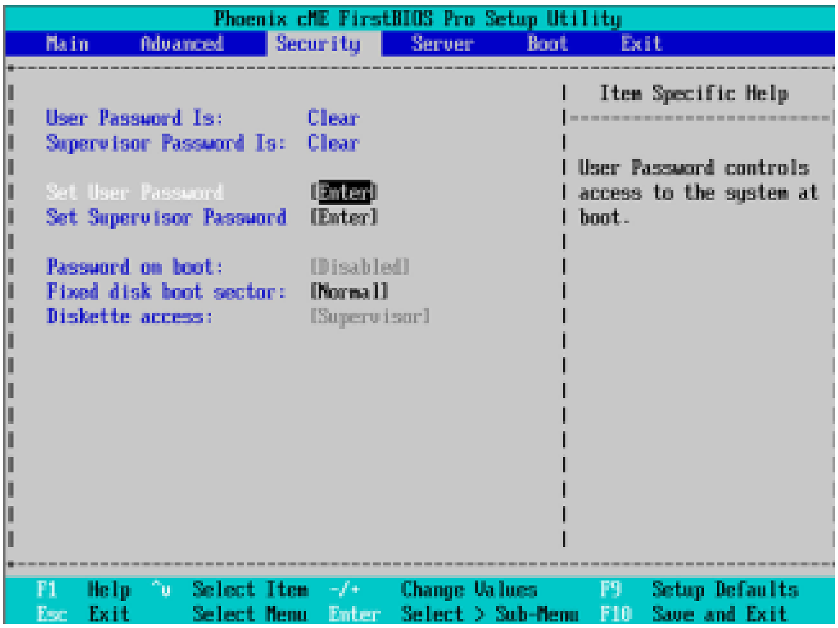


Figure 3: Security

☞Set User Password

You can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password.

☞Set Supervisor Password

You can install and change this options for the setup menus. Type the password up to 6 characters in lengh and press <Enter>. The password typed now will clear any previously entered password from the CMOS memory. You will be asked to confirm the entered password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a specified password or press <Enter> key to disable this option.

☞Password on boot

Password entering will be required when system on boot.

- ▸▸Enabled Requries entering password when system on boot.
- ▸▸Disabled Disable this function. (Default value)

☞Fixed disk boot sector

- ▸▸Write Protect Write protects boot sector on harddisk to protect against virus.
- ▸▸Normal Set the fixed disk boot sector at Normal state. (Default value)

☞Diskette access

Control access to diskette drives.

- ▸▸User Requires user's password to access floppy drives.
- ▸▸Supervisor Requires supervisor's password to access floppy drives. (Default value)

Server

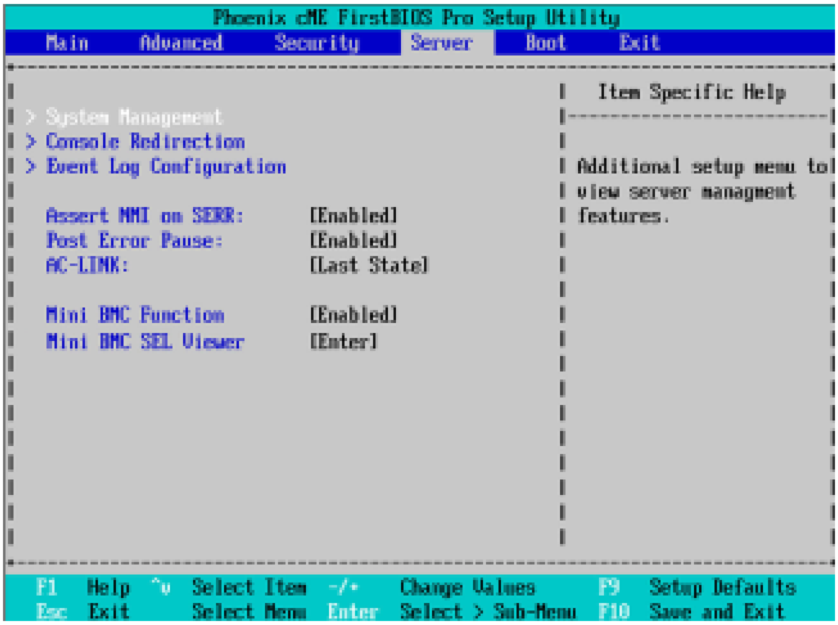


Figure 4: Server

System Management

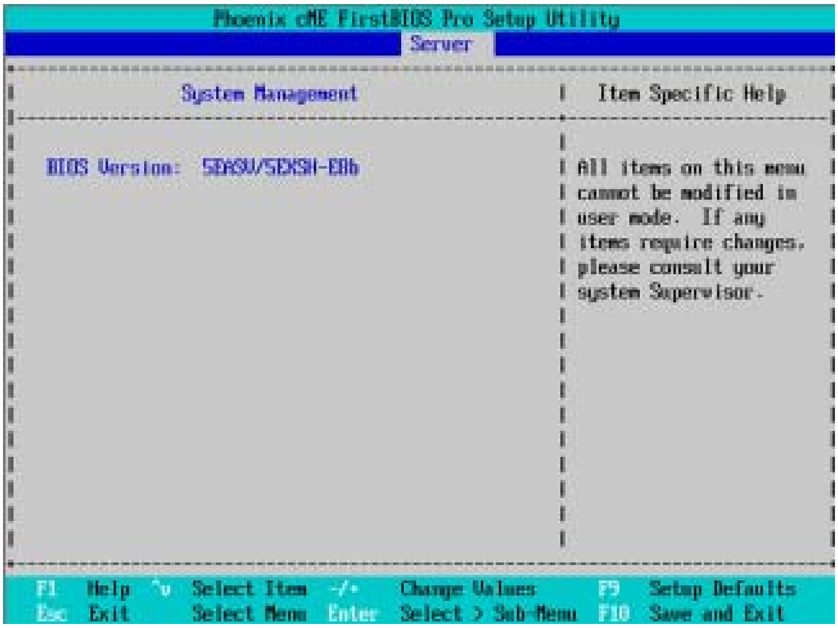


Figure 4-1: System Management

☞Server Management

This category allows user to view the server management features. Including information of BIOS Version. All items in this menu cannot be modified in user's mode. If any items require changes, please consult your system supervisor.

Console Redirection

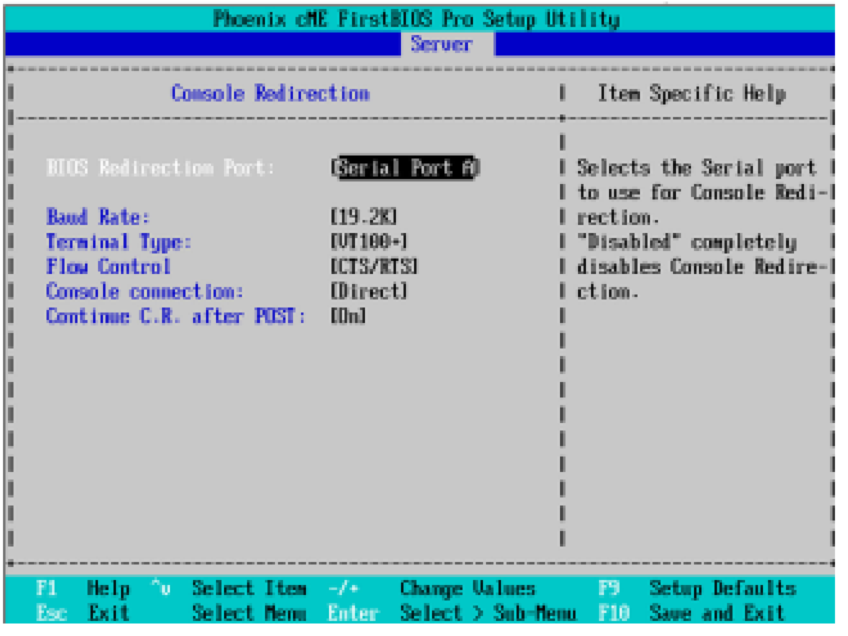


Figure 4-2: Console Redirection

☞ BIOS Redirection Port

If this option is set to enabled, it will use a port on the motherboard.

▸▸On-board COMA	Use COMA as he COM port address.
▸▸Disabled	Disable this function. (Default value)

Note: Tower has COMA and COMB.

☞ Baud Rate

This option allows user to set the specified baud rate.

▸▸Options	300, 1200, 2400, 9600, 19.2K, 38.4K, 57.6K, 115.2K.

☞ Terminal Type

This option allows user to select the specified terminal type. This is defined by IEEE.

▸▸Options	VT100, VT100 8bit, PC-ANSI 7bit, VT100+, VT-UTF8

☞ Flow Control

This option provide user to enable the flow control function.

►►None	Not supported.
►►XON/OFF	Software control.
►►CTS/RTS	Hardware control. (Default value)

☞ Console connection

This field indicates whether the console is connected directly to the system or a modem is used to connect.

►►Direct	Console is connected directly to the system. (Default value)
►►Disabled	Console is connected via the modem.

☞ Continue C.R. after POST

This option allows user to enable console redirection after O.S has loaded.

►►On	Enable console redirection after O.S has loaded.
►►Off	Disable this function. (Default value)

Event Log Configuration

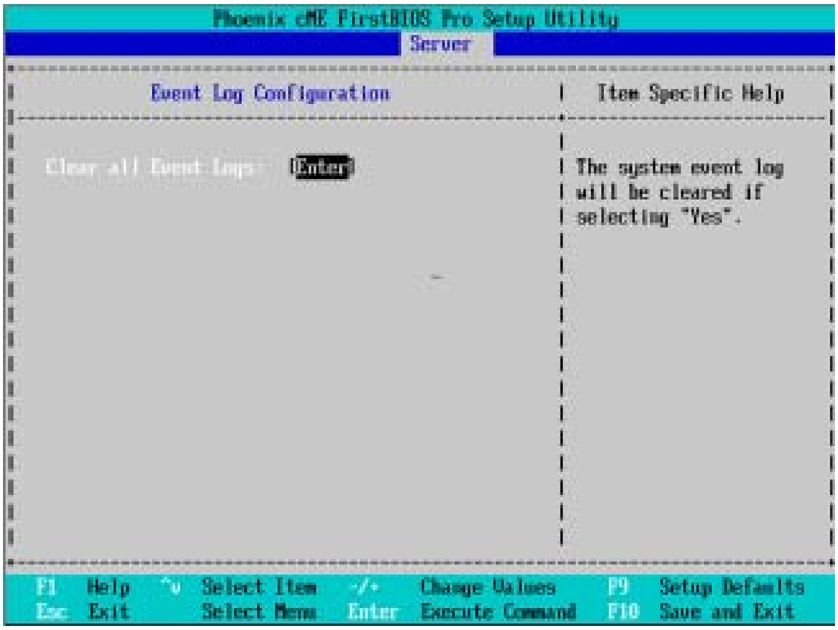


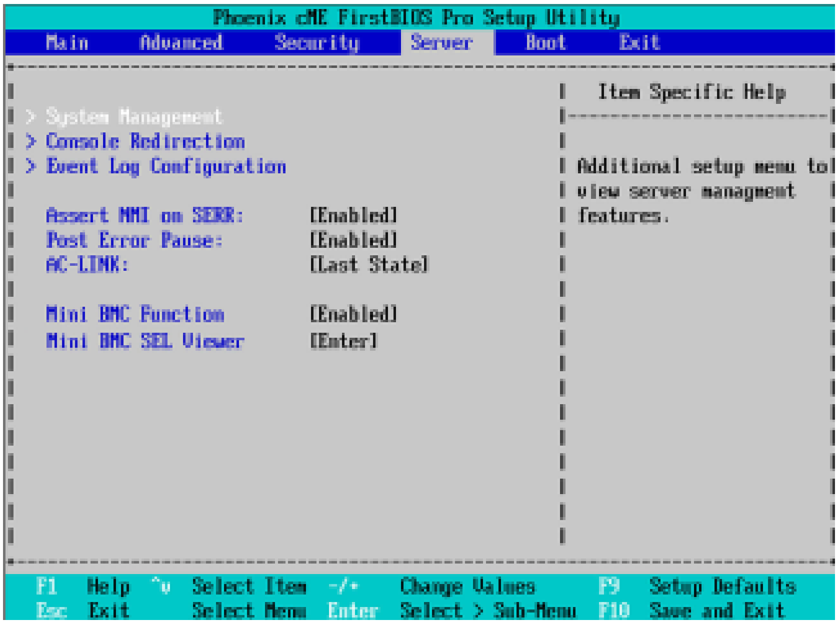
Figure 4-3: Event Log Configuration

☞ Event Log Confuguration

This option contains additional setup menu to configure the Event Log Configuration.

▶ Clear all Event Logs

▶▶Enter The system event log will be cleared if pressing Enter.



☞ Post Error Pause

If this item is set to enabled, the system will wai for user intervention on critical POST errors. If this item is disabled, the system will boot with no intervention if possible.

▸▸Enabled	Enable Post Error Pause. (Default value)
▸▸Disabled	Disable this function.

☞ Assert NMI on SERR

If thisoption is set to enabled, PCI bus system error (SERR) is enabled and is routed to NMI.

▸▸Enabled	Enable Assert NMI on SERR. (Default value)
▸▸Disabled	Disable this function.

☞AC-LINK

This option provides user to set the mode of operation if an AC / power loss occurs.

►►Power On	System power state when AC cord is re-plugged.
►►Stay Off	Do not power on system when AC power is back.
►►Last State	Set system to the last sate when AC power is removed. Do not power on system when AC power is back. (Default value)

☞ Mini BMC Function

►►Enabled	Enable Mini BMC function. (Default value)
►►Disabled	Disable this function.

This option will disappear and disable when BMC module is populated.

☞ Mini BMC SEL View

Press [Enter] to view the Mini BMC SEL.

This option will disappear and disable when BMC module is populated.

Boot

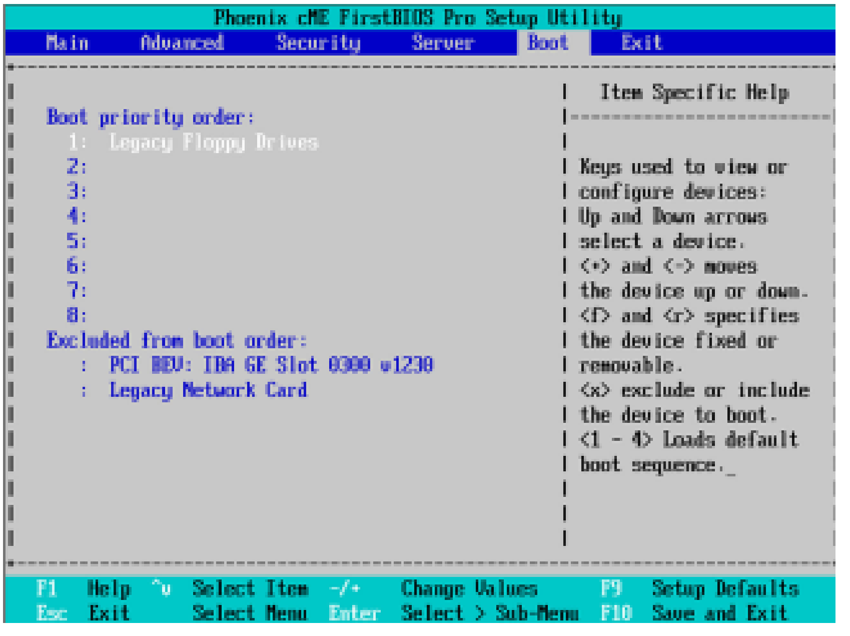


Figure 5: Boot

☞Boot Priority Order

This field determines which type of device the system attempt to boot from after PhoenixBIOS Post completed. Specifies the boot sequence from the available devices. If the first device is not a bootable device, the system will seek for next available device.

Key used to view ot configure devices:

Up and Down arrows select a device.

<+> and <-> moves the device up or down.

<f> and <r> specifies the device fixed or removable.

<x> exclude or include the device to boot.

<1-4> Loads default boot secquence.

Exit

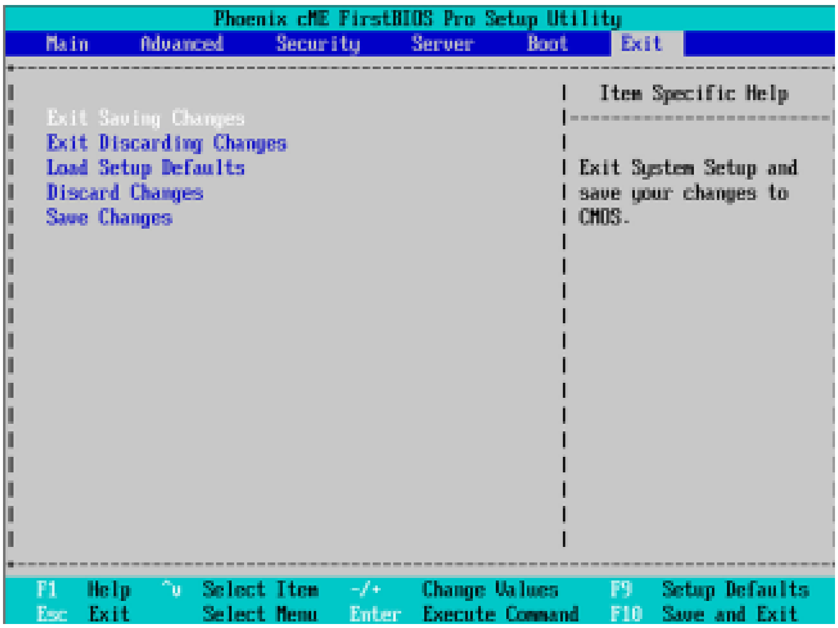


Figure 6: Exit

About This Section: Exit

Once you have changed all of the set values in the BIOS setup, you should save your changes and exit BIOS setup program. Select **"Exit"** from the menu bar, to display the following sub-menu.

- Exit Saving Changes
- Exit Discarding Changes
- Load Settup Default
- Discard Change
- Save Changes

☞Exit Saving Changes

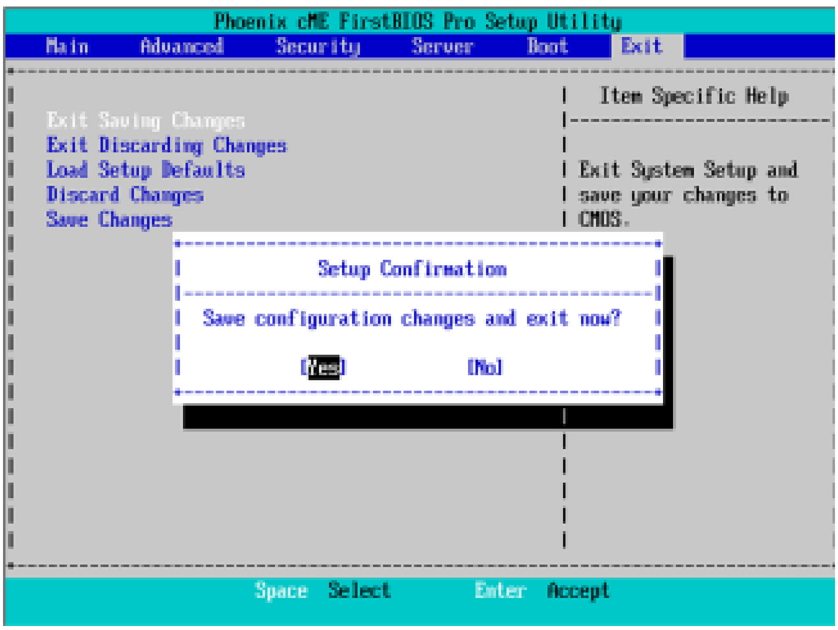
This option allows user to exit system setup with saving the changes.

Press <Enter> on this item to ask for the following confirmation message:

Pressing 'Y' to store all the present setting values tha user made in this time into CMOS.

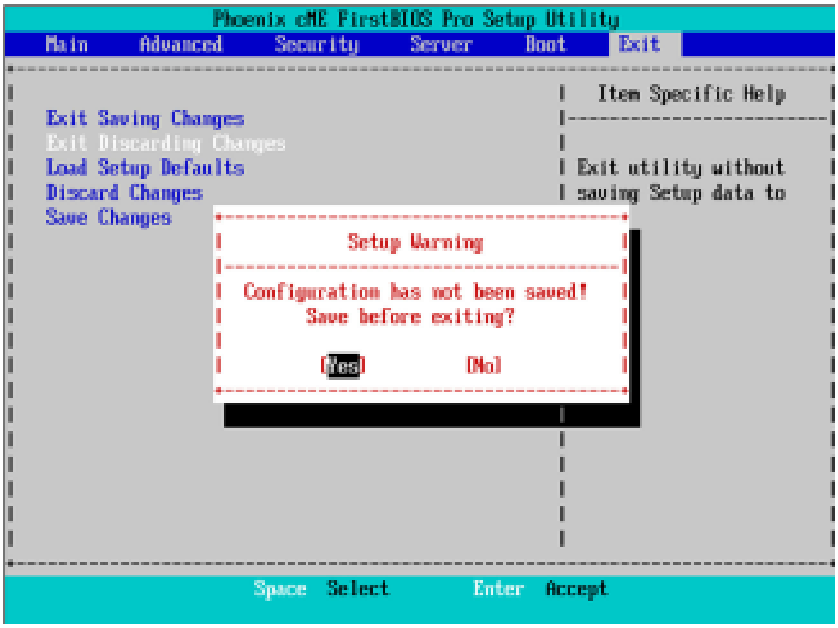
Therefore, whenyou boot up your computer next time, the BIOS will

re-configure your system according data in CMOS.



☞Exit Discarding Changes

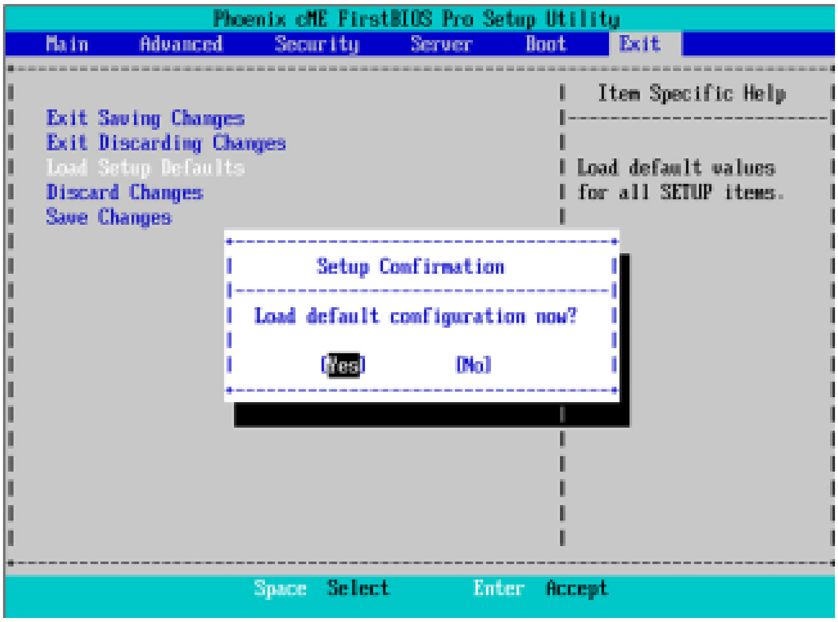
This option allows user to exit system setup without changing any previous settings values in CMOS. The previous selection remain in effect. This will exit the Setup Utility and restart your compuetr when selecting this option.



☞Load Settup Default

This option allows user to load default values for all setup items.

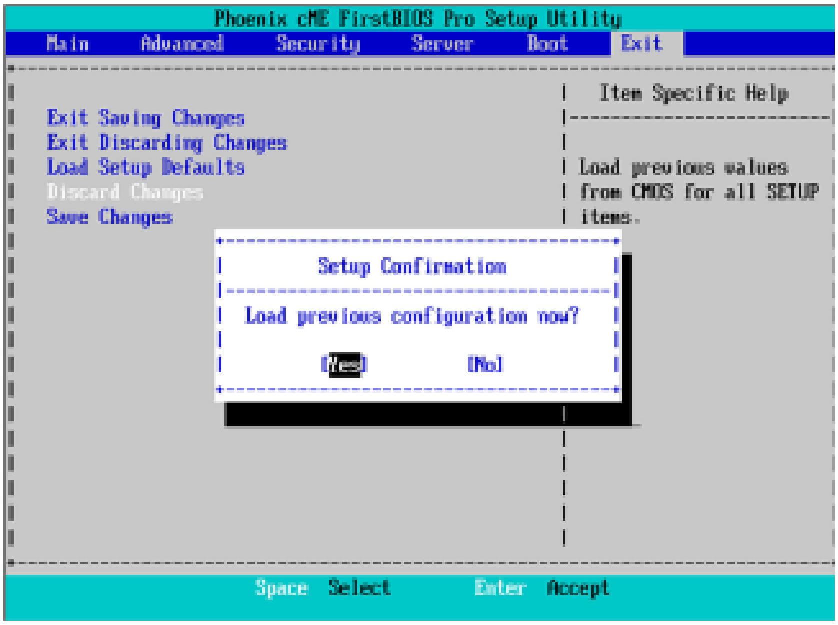
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



☞Discard Changes

This option allows user to load previos values from CMOS for all setup item.

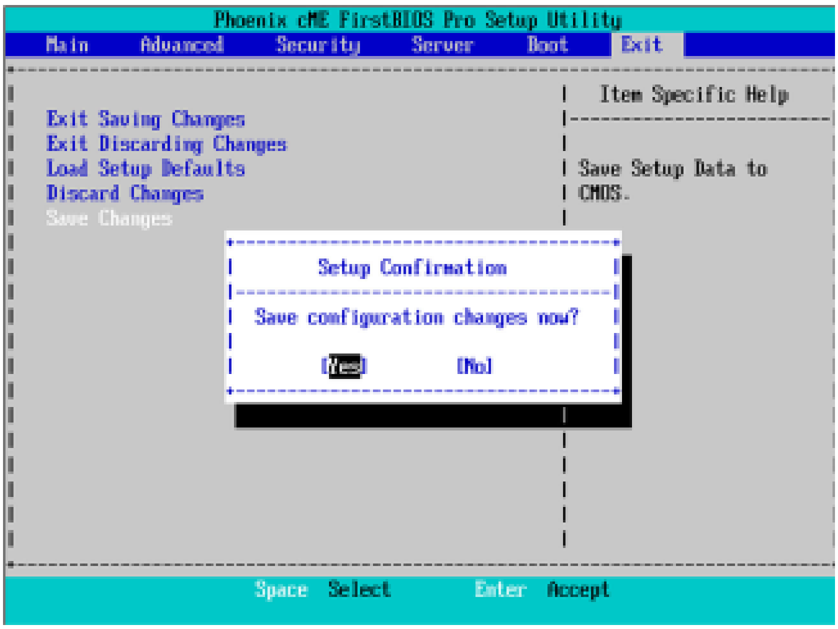
When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



☞Save Changes

This option allows user to save setup dat ato CMOS.

When you press <Enter> on this item, you will get a confirmation dialog box with a message as below:



Press [Yes] to save setup daya to CMOS.

Chapter 4 INTEL RAID BIOS Configuration

Configuring the Intel RAID BIOS

The Intel RAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup

1. After rebooting your computer, wait until you see the RAID software prompting you to press Ctrl + I. The RAID prompt appears as part of the system POST and boot process prior to loading the OS. You have a few seconds to press Ctrl + I before the window disappears.

```
Intel(R) Matrix Storage Manager option ROM V5.0.0.1011 ICH7R wRAID5
Copyright(C) 2003-04 Intel Corporation.  All Rights Reversed.

RAID Volumes :
None Defined.

Physical Disks :
Port    Driver Model    Serial #        Size      Type/Status(Vol ID)
0       ST3120026AS     3JT354CP        111.7GB   Non-RAID Disk
1       ST3120026AS     3JT329JX        111.7GB   Non-RAID Disk

Press <CTRL - I> to enter Configuration Utility
```

Press Ctrl + I. The Intel RAID Utility - Create RAID Volume window appears (as illustrated below).

```
Intel(R) Matrix Storage Manager option ROM V5.0.0.1011 ICH7R wRAID5
Copyright(C) 2003-04 Intel Corporation.  All Rights Reversed.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

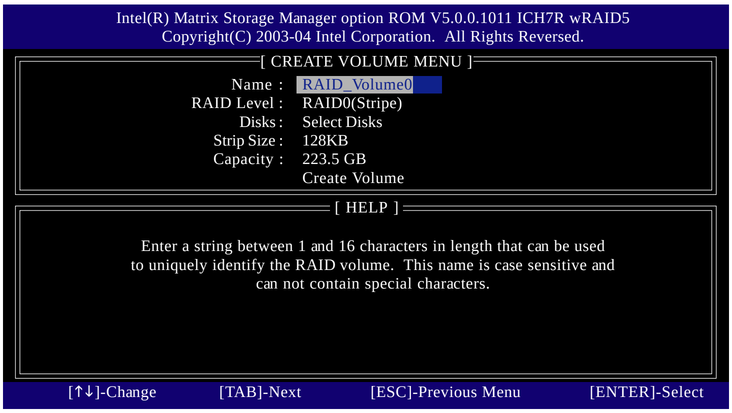
[ DISK/VOLUME INFORMATION ]
RAID Volumes :
None Defined.

Physical Disks :
Port    Driver Model    Serial #        Size      Type/Status(Vol ID)
0       ST3120026AS     3JT329JX        111.7GB   Non-RAID Disk
1       ST3120026AS     3JT354CP        111.7GB   Non-RAID Disk

[↑↓]-Select            [ESC]-Exit            [ENTER]-Select Menu
```

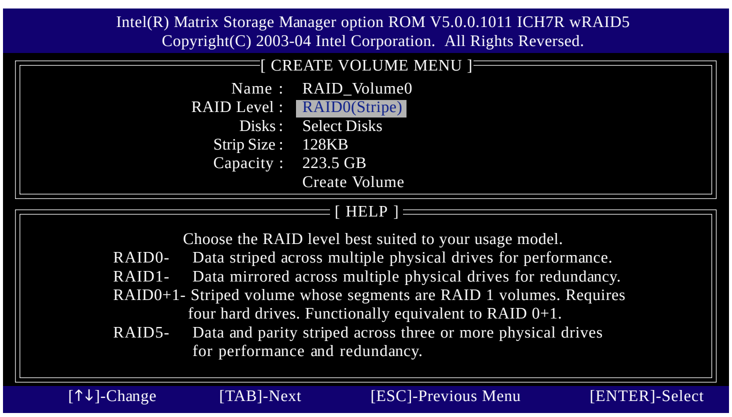
Create RAID Volume

Press **Enter** under **Create RAID Volume** to set up RAID.



After entering the Create Volume Menu, you can set disk name with 1~16 letters (letters cannot be special characters) under **Name** item.

After setting disk name, press **Enter** to select **RAID Level**.

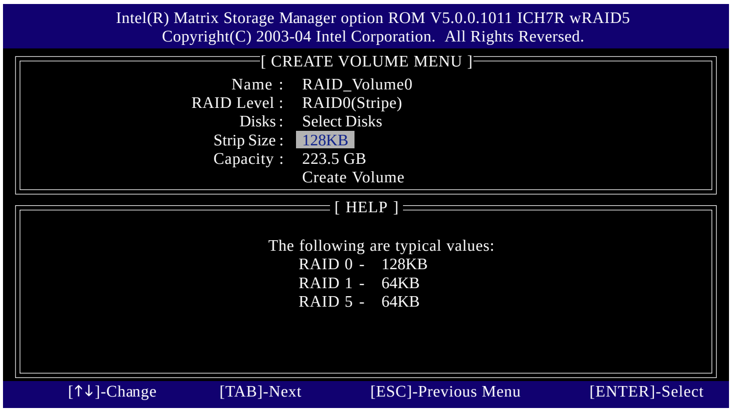


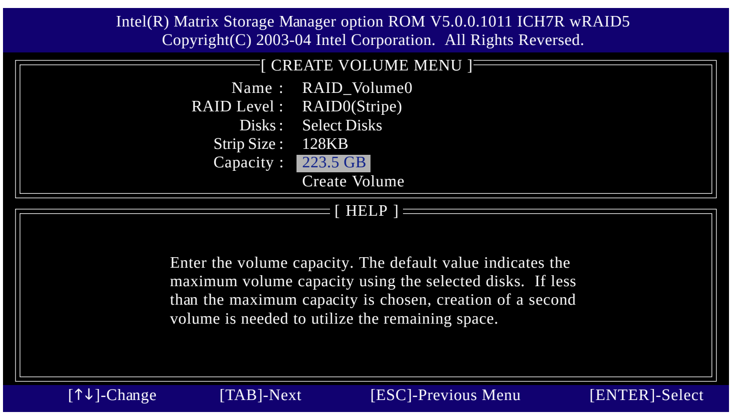
There are four RAID levels: RAID0(Stripe), RAID1(Mirror), RAID 0+1 (Striping + Mirroring) and RAID5.

After selecting the RAID level, press **Enter** to select **Strip Size**.

The KB is a unit of Strip Size. You can set disk block size with this item.

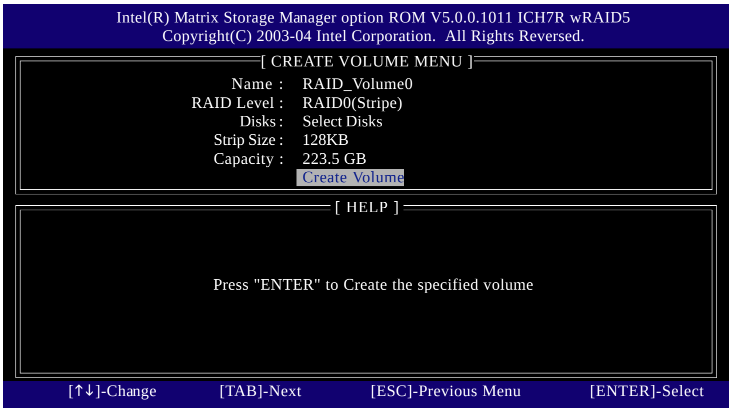
The disk block size can be set from 4KB to 128KB. After you set disk block size, press **Enter** to set disk **Capacity**.



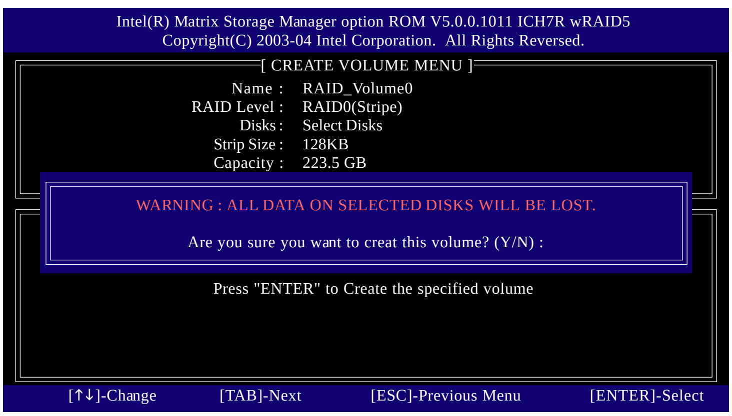


Press **Enter** to enter **Create Volume** after setting disk capacity.

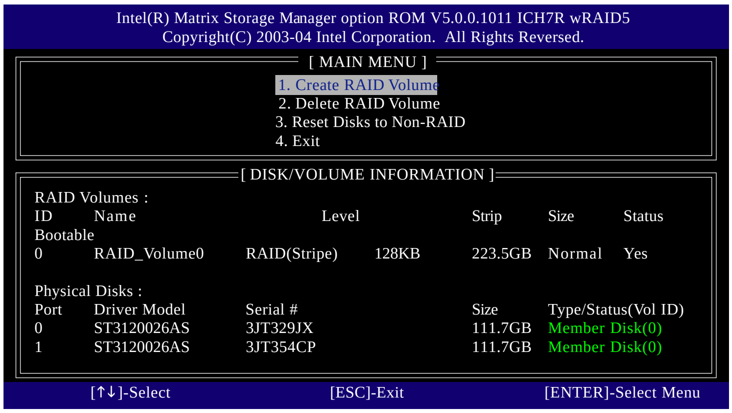
Press **Enter** under the **Create Volume** item.



An alert bar will be displayed warning you that all data on selected disks will be lost. Please press Y to complete the set-up of RAID.

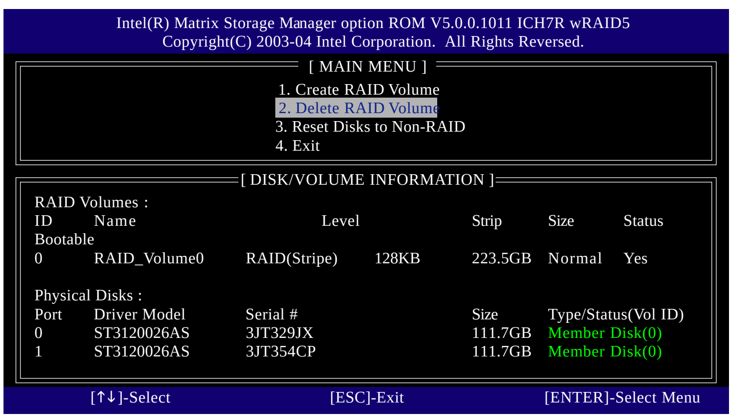


After the completion, you will see the detailed information about the RAID, such as RAID level, disk block size, disk name and disk capacity, etc.



Delete RAID Volume

If you want to delete a RAID volume, please select the **Delete RAID Volume** option. Press **Enter** key and follow the instructions on the screen.



Chapter 5 Application Driver Installation

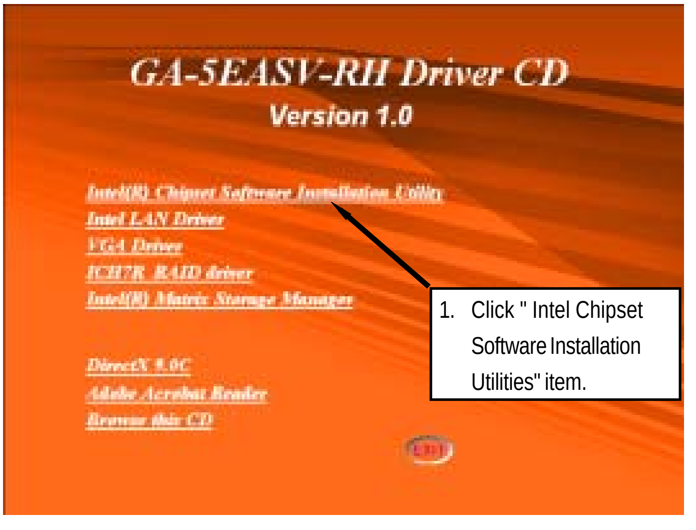
A. Intel Chipset Software Installation Utilities

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show a series of Setup Wizard dialog boxes. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

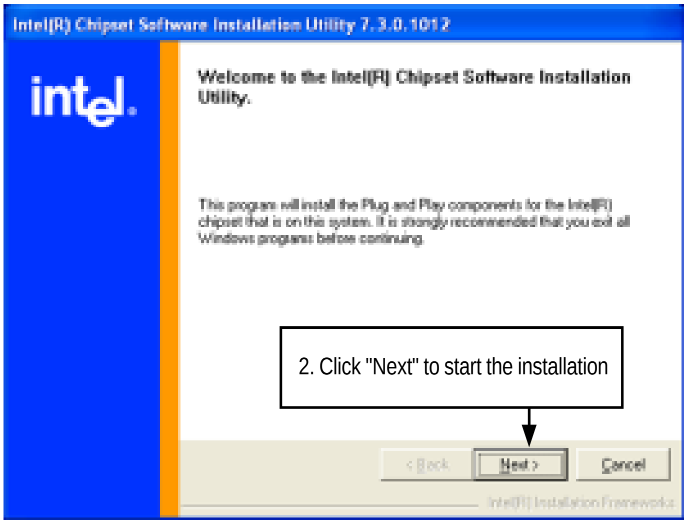
Installation Procedures:

1. The CD auto run program starts, **Double click** on "Intel Chipset Software Installation Utilities" to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click "Finish" to restart your computer.

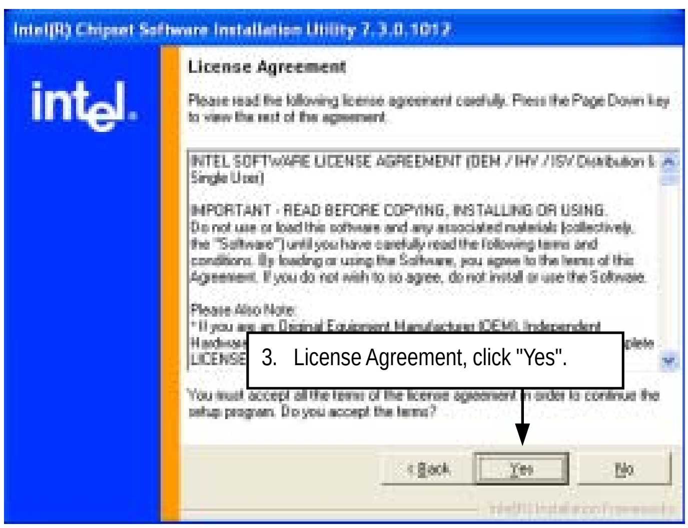
1. Autorun



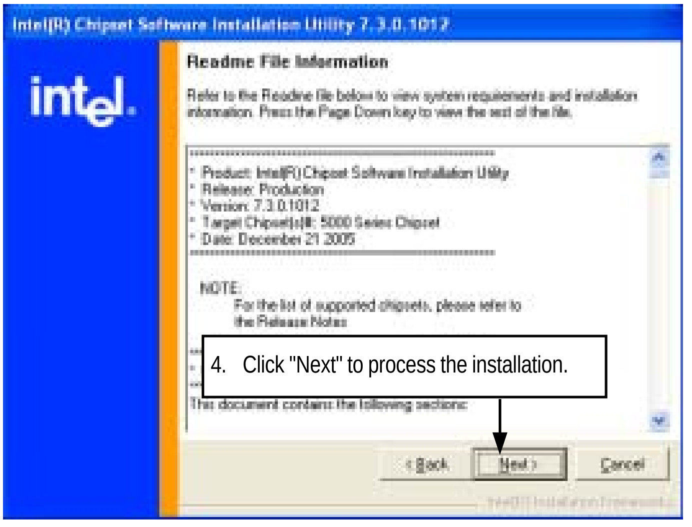
2. InstallShield Wizard Welcome Window



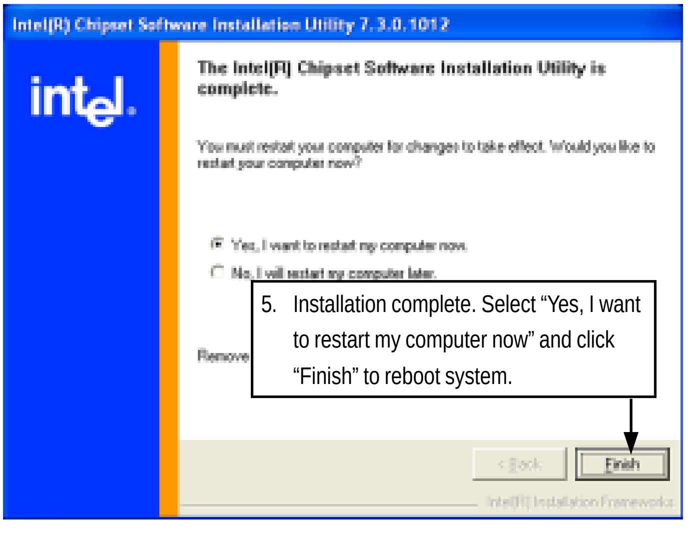
3. License Aggrement



4. Readme Information



5. Installation Complete. Restart Computer



B. Intel LAN Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show a series of Setup Wizard dialog boxes. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Installation Procedures:

1. The CD auto run program starts, **Double click** on “Intel LAN Driver” to start the installation.
2. Select “Install Driver.
3. System starts to install the LAN Driver automatically.

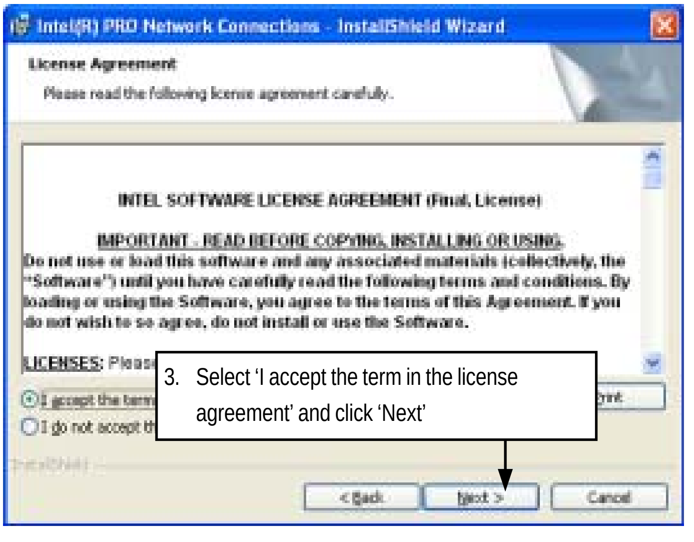
1. Autorun



2. Installation Wizard Welcom Window



3. License Agreement



4. Select Setup Type

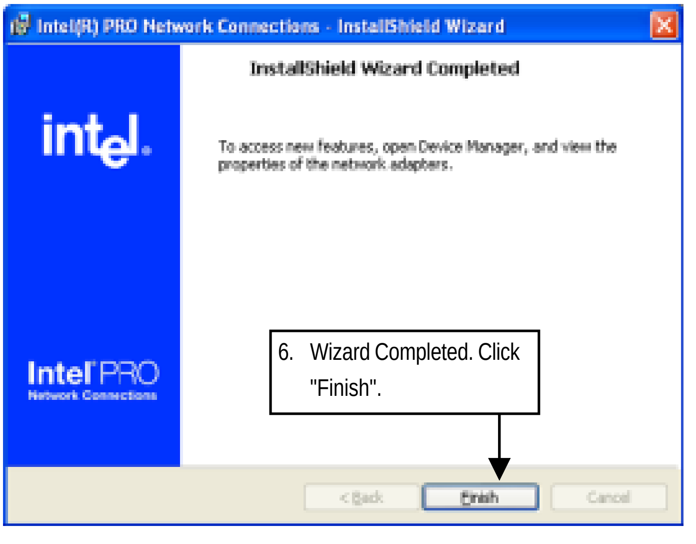


Step 4. User can select either **Complete** or **Custom** Setup Types. **Complete** setup type allows users to Installs drivers, Intel PROSet for Windows* Device Manager, and Advanced Networking Services. **Custom** setup type embraces installing features and subfeatures user selects, including modern utilities, manage ment components and drivers. Recommended for advanced users.

5. Ready to instll program



6. Installation Complete



C. XGI VGA Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show a series of Setup Wizard dialog boxes. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

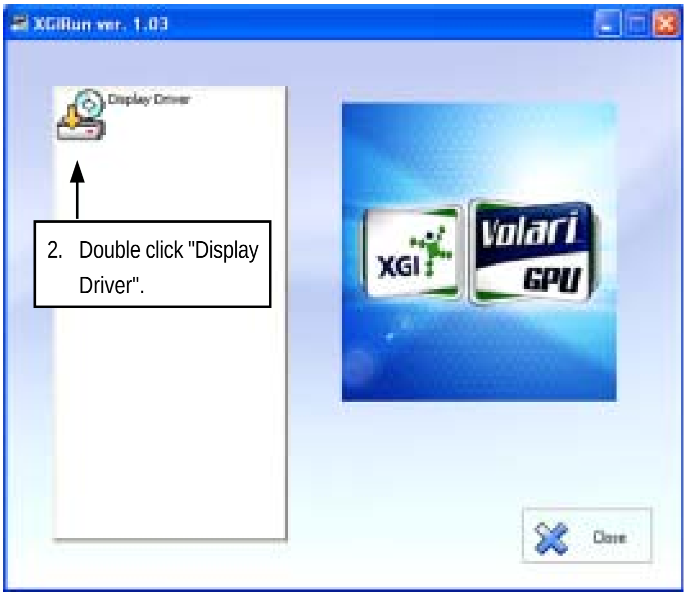
Installation Procedures:

1. The CD auto run program starts, **Double click** on “VGA Driver” to start the installation.
2. Double click on “**Display Driver**” item. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click “Finish” to restart your computer.

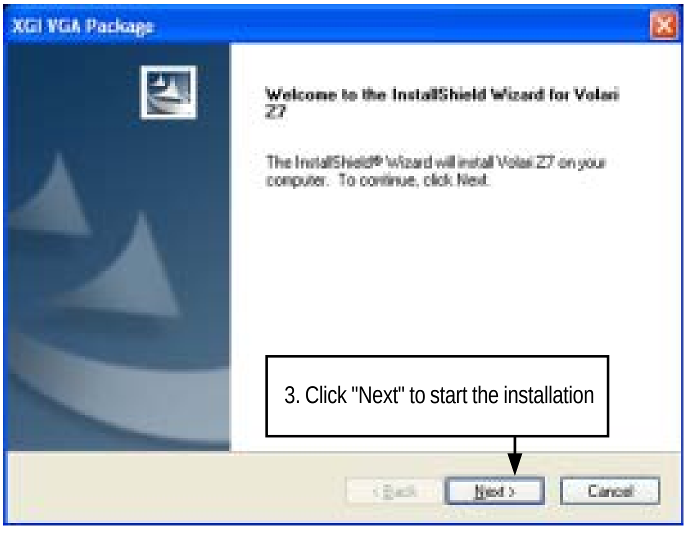
1. Autorun



2. Setup Wizard Window



3. InsallShield Wizard Window



4. Installaiton Wizard Completed



4. Installation complete. Select “Yes, I want to restart my computer now” and click “Finish” to reboot system.

D. Intel ICH7R RAID Driver Installation

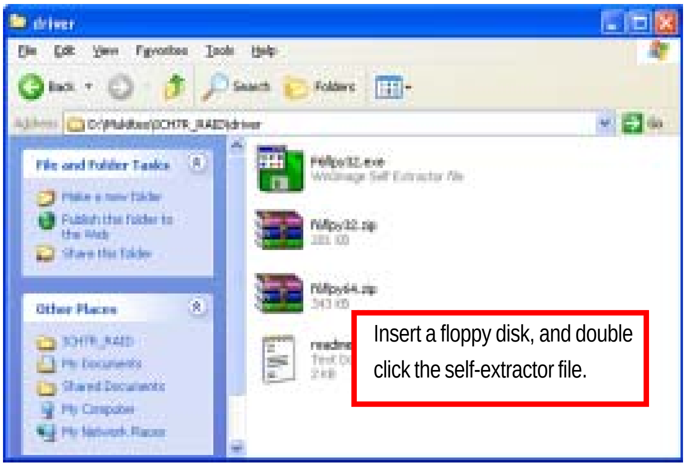
Installation Procedures:

1. The CD auto run program starts, **Double click** on “Intel ICH7R RAID Driver” to make a driver disk.
2. Select a folder refering to your operating system.
3. Insert a flopp disk in the floppy drive. Click on the self-extractor file.
4. System starts making a driver disk automatically.
5. Driver disk creation completed.

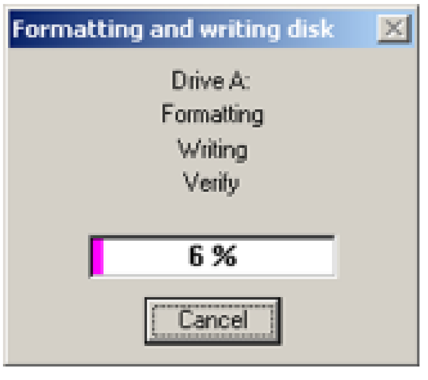
1. Autorun



2. Starting make a driver disk



3. Formatting and writing in floppy sidk



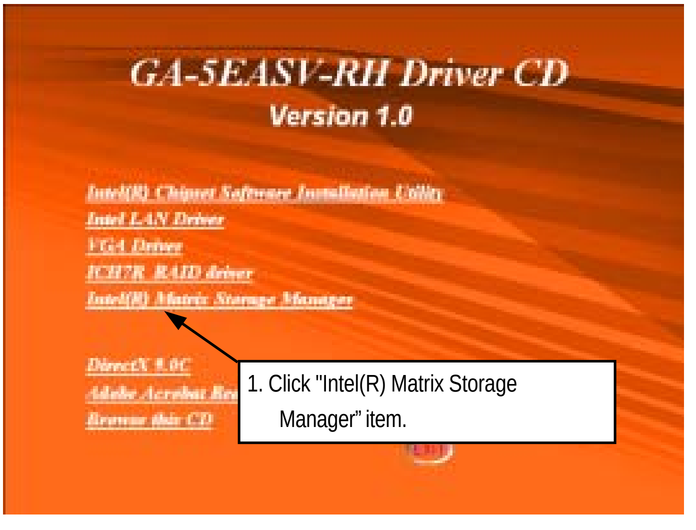
E. Matrix Storgae Manager Utility Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

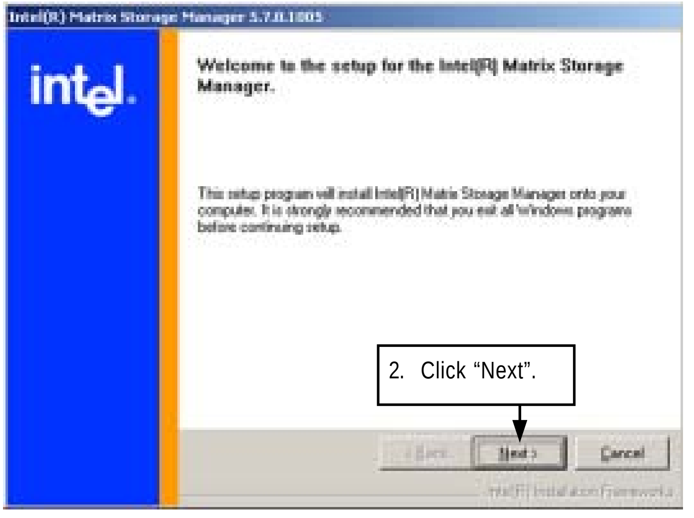
Installation Procedures:

1. The CD auto run program starts, **Double click** on “Intel (R) Matrix Storage Manager” to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3. Setup completed, click “Finish” to restart your computer.

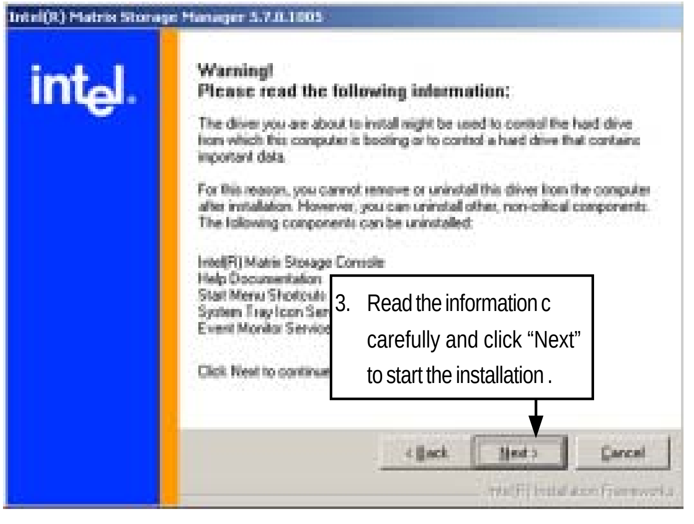
1. Autorun



2. Setup Wizard



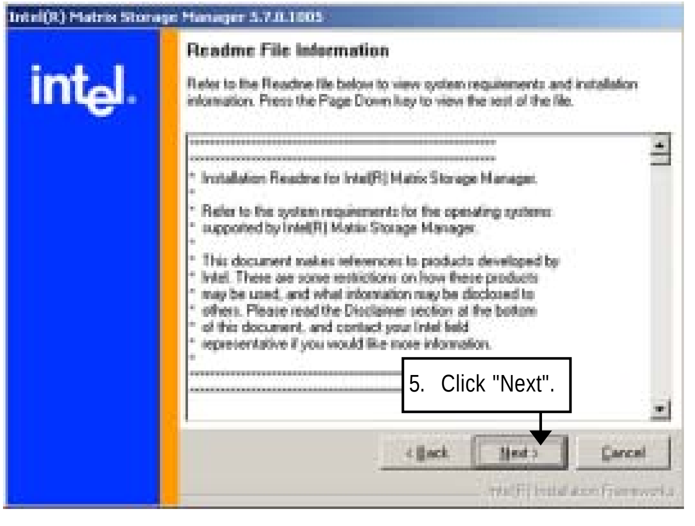
3. Warning Information



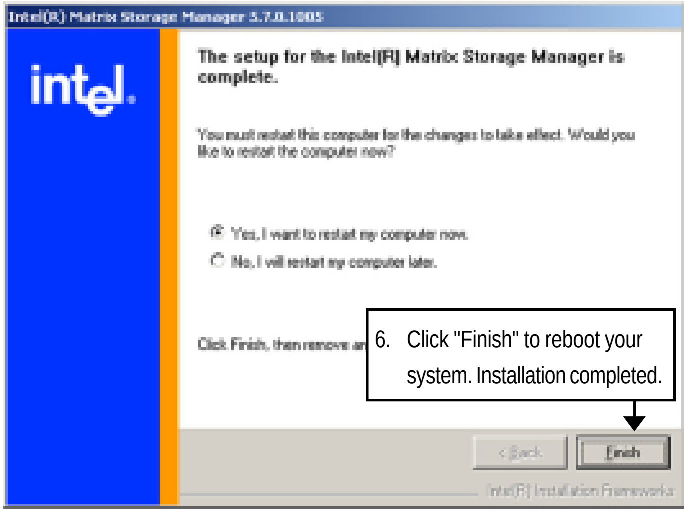
4. License Agreement



5. Readme Information



6. Installaiton Wizard completed



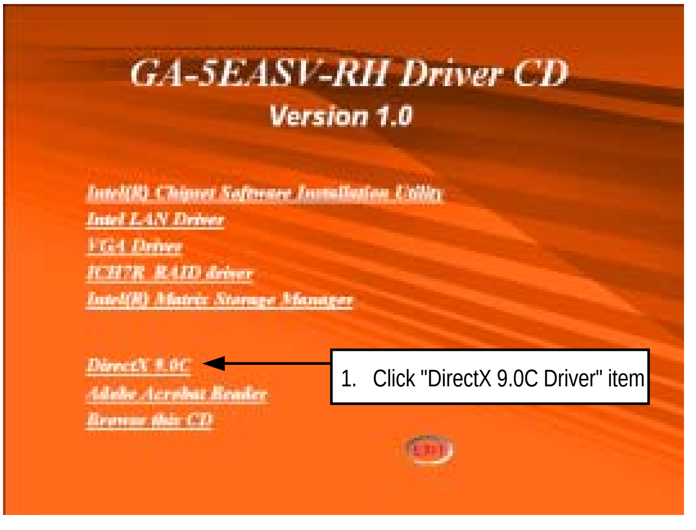
F. DirectX 9.0C Driver Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Installation Procedures:

1. The CD auto run program starts, **Double click** on "Directx9.0C" to start the installation.
2. Then, a series of installation wizards appear. Follow up the wizards to install the drivers.
3.Setup completed, click "Finish" to restart your computer.

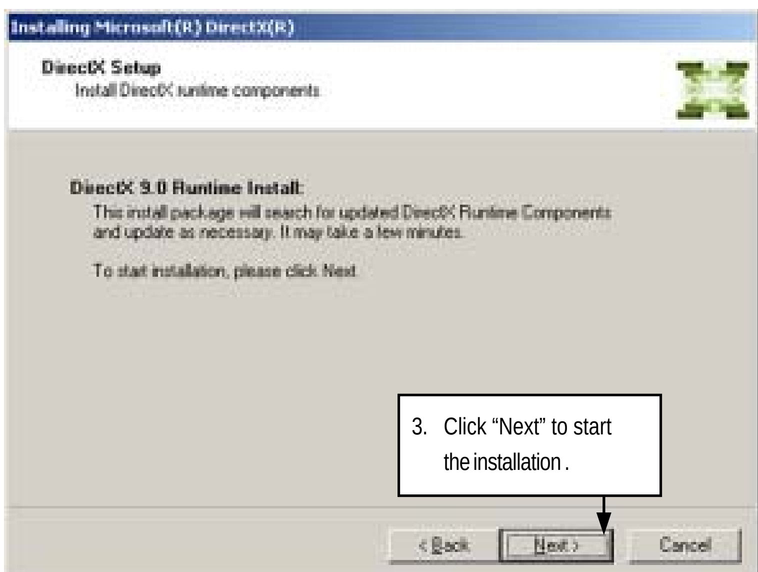
1. Autorun



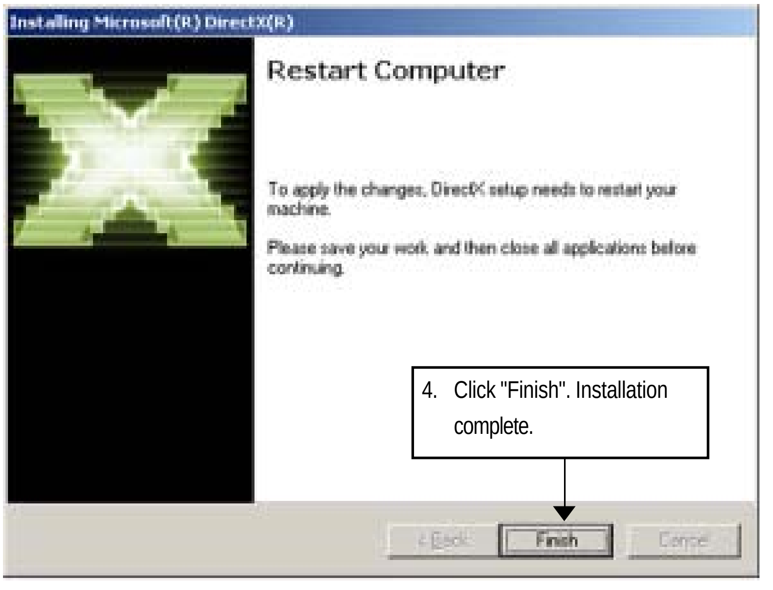
2. License Agreement



3. Start Installaiton



4. Installaiton Wizard completed



Chapter 6 Appendix

Appendix : Acronyms

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BBS	BIOS Boot Specification
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request

to be continued......

Acronyms	Meaning
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory
SMP	Symmetric Multi-Processing
SMI	System Management Interrupt
USB	Universal Serial Bus
VID	Voltage ID